

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GE HEALTHCARE BIO-SCIENCES)
AB, GE HEALTHCARE BIO-)
SCIENCES CORPORATION, and)
GENERAL ELECTRIC COMPANY,)
Plaintiffs,) C.A. No. 18-1899-CFC and
) C.A. No. 19-943-CFC (consolidated)
v.)
BIO-RAD LABORATORIES, INC.,)
Defendant.)

JOINT CLAIM CONSTRUCTION BRIEF

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I. AGREED-UPON CONSTRUCTIONS

The parties agree to the following constructions:

Claim Term(s)	Agreed Upon Construction
“CPU” / “CPU unit” U.S. Patent No. 9,709,589 (“the ’589 Patent”): 1, 5, 6 U.S. Patent No. 9,709,590 (“the ’590 Patent”): 1, 13, 17 U.S. Patent No. 9,709,591 (“the ’591 Patent”): 1, 17, 29 U.S. Patent No. 9,671,420 (“the ’420 Patent”): 1, 17, 27 U.S. Patent No. RE47,124 (“the ’124 Patent”): 20, 38	“central processing unit”
“the fluidics section is external to the housing and the non[-]fluidics section is internal to the housing” ’591 Patent: 1, 17, 29 ’420 Patent: 1, 17, 27 ’124 Patent: 16, 38	“the fluidics section is on the outside of the housing and the non-fluidics section is on the inside of the housing”

II. DISPUTED CONSTRUCTIONS

- A. **“interchangeable modular component” (’590 Patent: 1–6, 10–12; ’591 Patent: 1, 2, 4, 6, 8, 14, 17, 25, 28, 29; ’420 Patent: 1, 6, 10, 15, 16, 17, 23, 27; ’124 Patent: 16, 17, 19, 20, 22–25, 29, 31, 36–40, 42, 43)**

GE’s Construction	Bio-Rad’s Construction
“a component of standardized size and shape that may be used in place of another component of the same standardized size and shape with different functionality”	“component that can be inserted into and removed from positions in the housing [unit] and that has a standardized size and shape that allows it to be exchanged with another component” ¹

¹ Bio-Rad has slightly modified its proposed construction for the first three terms from the one it set forth in the Joint Claim Construction Chart to omit the word “different.” See D.I. 52-1, at 1-4. This change does not substantively alter

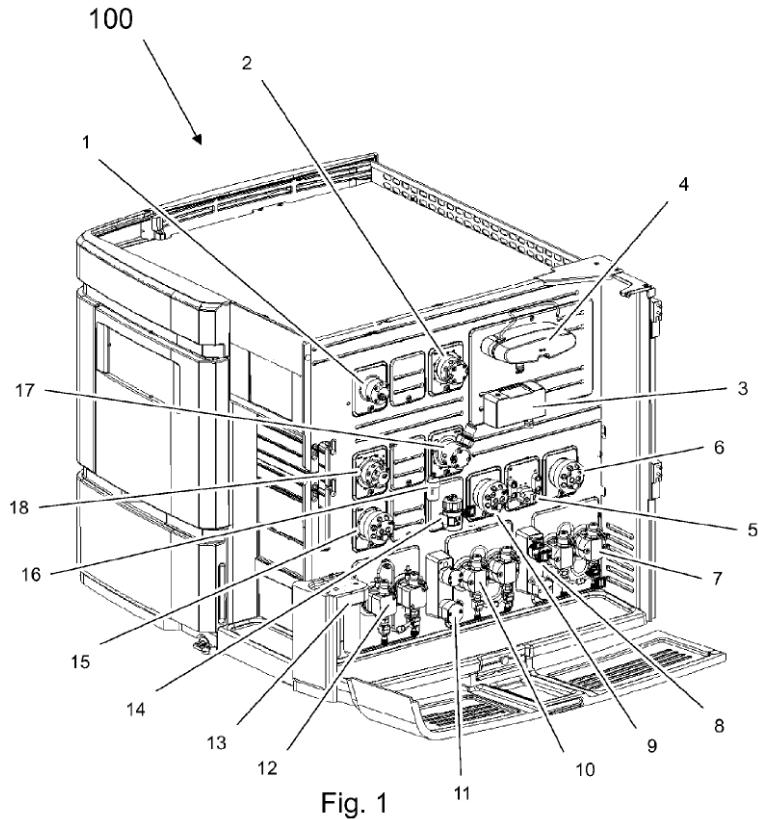
1. Plaintiffs' Opening Position

The liquid chromatography systems described and claimed in the Asserted Patents² are designed to overcome some of the problems users faced when using prior art systems. Many researchers needed flexibility to alter or optimize the fluid path flow of their liquid chromatography systems. 1:29-32.³ Historically, upgrading or modifying a liquid chromatography system required use of specific kits provided by the manufacturer, and such upgrade kits were often supplied as external add-on equipment to be arranged beside the original system. 1:33-40. The liquid chromatography systems described and claimed in the Asserted Patents (*e.g.*, Fig. 1, below) allow users to interchange the modular components (1-18) of the liquid chromatography system by swapping components with another of like size and shape but with different functionality within the housing.

Bio-Rad's claim construction but rather changes the language to be more consistent with the intrinsic record, as discussed in the relevant sections of this brief.

² The Asserted Patents are: 9,709,589 (“the ‘589 Patent”), 9,709,590 (“the ‘590 Patent”), 9,709,591 (“the ‘591 Patent”), 9,671,420 (“the ‘420 Patent”), and RE47,124 (“the ‘124 Patent”).

³ The Asserted Patents share a common specification. For ease of reference, only citations to the ‘589 Patent will be provided.



The use of interchangeable modular components permits users to optimize the fluid flow path (an exemplar path is shown in Fig. 10, below) without having to either order a new instrument or make complicated changes that would have been required with prior art instruments when expanding or modifying their machine.

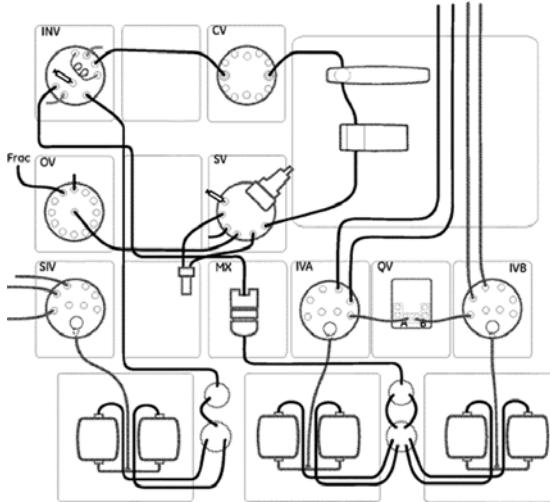


Fig. 10

Both parties agree that an “interchangeable modular component” is a “component of standardized size and shape.” *See* 5:61-63 (“The component positions are given a standardized size and shape to provide simple interchangeability.”). In view of the above-stated purpose and intrinsic record, GE’s construction also states that the component must be interchangeable with another component of the same standardized size and shape, and which has a different functionality from the first component.

The specification of the Asserted Patents supports GE’s construction. For example, the specification describes not only that a fluid handling unit (or component) can be removed and a new one put in its place, but that the fluid handling units are “designed to be readily interchangeable” and “[t]he interchangeability provides improved service and upgrade possibilities and also a possibility to customize the positions of the respective liquid handling components

. . . in order to optimize the fluid path for a specific experimental setup.” 5:53-57.

As discussed in more detail below, the specification states that fluid handling units are a type of interchangeable modular component. 6:4-13. The specification’s teachings regarding fluid handling units are thus applicable to interchangeable modular components.

In sum, the specification makes clear that to accomplish the goal of optimizing the fluid path for liquid chromatography applications, differently functioned components must necessarily be interchanged in that process. Otherwise, the fluid path would not be altered in the simple exchanging of, for example, an outlet valve for another outlet valve. Given that claim terms should be construed in view of the purpose of the invention, the specification supports GE’s construction. *See Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1368 (Fed. Cir. 2008) (examining the purpose of the limitation in the claimed invention, as evident from the specification, during claim construction).

The prosecution history of the ’718 patent, the parent patent to all the Asserted Patents,⁴ further mandates GE’s construction. In response to a prior art rejection under the Mourtada reference during prosecution of the ’718 Patent, applicants made clear that the ability to exchange components with other

⁴ Each of the Asserted Patents claims priority, directly or indirectly, to the ’718 Patent.

components of different functionality is a distinguishing feature of the invention from previous designs, including Mourtada's disclosure. Mourtada disclosed "cassettes" that could be removed or replaced when necessary. Applicants stated that "whilst the cassettes... are *replaceable or exchangeable with a differently configured cassette*, they are *not interchangeable* with *other components* in the apparatus... [t]hus, one skilled in the art reading Mourtada, would conclude that Mourtada shows a maintainable apparatus, but not one which has modular components." D.I. 52, Ex. G at GE_001475 (emphasis added). The Examiner found this argument persuasive, and thus withdrew the prior art rejection based on Mourtada. *Id.* at GE_000882.

Thus, during prosecution, applicants distinguished between (i) *replacing* a component with the *same* type of functionality (as Mourtada described) and (ii) interchanging a component having *different* functionality, as the present invention contemplates. *See id.*, Ex. F at GEBIO_DE_000000671 ("Applicant indicated that [] only [the] purification and formulation cassettes were replaceable on Mourtada's system...").

Bio-Rad's construction, which allows the simple act of replacing one component with another having the same functionality, would negate arguments applicants made during prosecution to overcome a prior art rejection. This is contrary to Federal Circuit authority, which emphasizes the importance of the

prosecution history in situations like that here. In particular, when a patentee utilizes “a coined term, meaning it has no ordinary and customary meaning, the question is whether the intrinsic evidence provides objective boundaries to the scope of the term. In these circumstances, where there is no clear ordinary and customary meaning of a coined term … we may look to the prosecution history for guidance without having to first find a clear and unmistakable disavowal.”

Iridescent Networks, Inc. v. AT&T Mobility, LLC, 933 F.3d 1345, 1352–53 (Fed. Cir. 2019) (internal citations omitted). In *Iridescent*, the Federal Circuit held that statements made during prosecution that resulted in the issuance of the patent informed the construction of a term coined by the patentee. Similarly, in this case, GE made statements to the examiner during prosecution regarding the meaning of the term “interchangeable modular component” that inform the construction of this term.

Finally, the arguments made during prosecution of the ’718 Patent, are applicable to all the Asserted Patents since it is the ultimate parent to each of them. *See Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1314 (Fed. Cir. 2007) (relying on the prosecution history of a parent patent when the specifications of

the parent and children patents have the same content).⁵

2. Defendant's Answering Position

The dispute between the parties as to this term centers on whether an “interchangeable modular component” is merely a component that “can be inserted into and removed from positions in the housing [unit]⁶” such that it can “be exchanged with another component” as Bio-Rad proposes, or whether this interchangeability requires components “that may be used in place of another component . . . *with different functionality*” as GE proposes.

GE’s proposed requirement that interchangeability is only satisfied with components “that may be used in place of another component . . . *with different functionality*” is inconsistent with the specification and the claim language. Contrary to GE’s argument, this narrow requirement is not supported by a clear

⁵ The PTAB, during the *inter partes* review (“IPR”) proceedings for the ’718 Patent, construed the phrase “two or more interchangeable fluid handling units...arranged as interchangeable modular components” to mean “two or more fluid handling units of a standardized size and shape...arranged such that they may be used in place of other fluid handling units of the same standardized size and shape.” D.I. 52, Ex. H at GEBIO_DE_000003571. However, this term was construed under the broadest reasonable interpretation (“BRI”) standard under former 37 C.F.R. 42.100(b) (“A claim in an unexpired patent that will not expire before a final written decision is issued shall be given its broadest reasonable construction *in light of the specification of the patent in which it appears.*”) (emphasis added). Moreover, the prosecution history of the patent was not considered by the PTAB.

⁶ Some patents refer to the system’s housing simply as a “housing,” while others refer to it as a “housing unit.” The bracketed term applies only to the latter.

and unequivocal disclaimer in the prosecution history sufficient to reverse the broader description of “interchangeable modular components” in the specification and the claims.

a. Bio-Rad’s Proposal, Not GE’s, Is Consistent With the Specification and the Claims

As GE argues, it is true that the alleged invention of the Asserted Patents⁷ “are designed to overcome some of the problems users faced when using prior art systems.” *Supra* p. 2; *see* 1:50-52⁸ (“The object of the invention is to provide a new fluid handling system, which system overcomes one or more drawbacks of the prior art.”). However, one of the key drawbacks of prior art systems discussed in the Asserted Patents is that “replacement of defect [sic] fluid handling units is a time consuming and delicate task.” 1:39-40. GE’s Opening Brief entirely ignores this aspect of the alleged invention, and its proposed construction would exclude replacing a defective unit with a properly functioning unit having the same function.

Instead of confronting this portion of the specification, GE argues that the specification’s disclosure of fluid handling units “designed to be readily

⁷ The Asserted Patents are: 9,709,589 (“‘589 Patent”), 9,709,590 (“‘590 Patent”), 9,709,591 (“‘591 Patent”), 9,671,420 (“‘420 Patent”), and RE47,124 (“‘124 Patent”).

⁸ The Asserted Patents share a common specification. For ease of reference, only citations to the ‘589 Patent will be provided.

interchangeable” and that “[t]he interchangeability provides improved service and upgrade possibilities and also a possibility to customize the positions of the respective liquid handling components . . . in order to optimize the fluid path for a specific experimental setup” supports its inclusion of “with different functionality” in the claim construction for this term. *Supra* pp. 4-5 (quoting 5:53-57). But the full passage does not support GE’s position. To begin, by emphasizing that “interchangeability provides improved *service* and upgrade possibilities” (5:53-54⁹), this passage reinforces the specification’s disclosure of interchangeability as having to do, in one application, with the difficulty of replacing defective fluid handling units in prior art systems. 1:39-40. Moreover, there is nothing in the passage that GE relied upon requiring that upgrading a system to optimize a fluid path means exchanging modules of different functionality. For example, the Asserted Patents describe embodiments where certain module positions are populated by dummy modules having no function. *See* Figs. 1, 4b (element 24); 6:14-19.

In addition, GE selectively quotes from a passage that actually explains (with reference to Figure 2, reproduced below) that, “[a]ccording to one embodiment, *all* liquid handling components and sensors arranged at the liquid

⁹ All emphasis in quotations in Bio-Rad’s Responsive Brief is added unless otherwise noted.

handling panel 22 are designed to be readily interchangeable” and that “[t]he interchangeability provides improved service and upgrade possibilities and also a possibility to customize the positions of the respective liquid handling components, ***such as the fluid control valves***, e.g. in order to optimize the fluid path for a specific experimental setup.” 5:50-57.

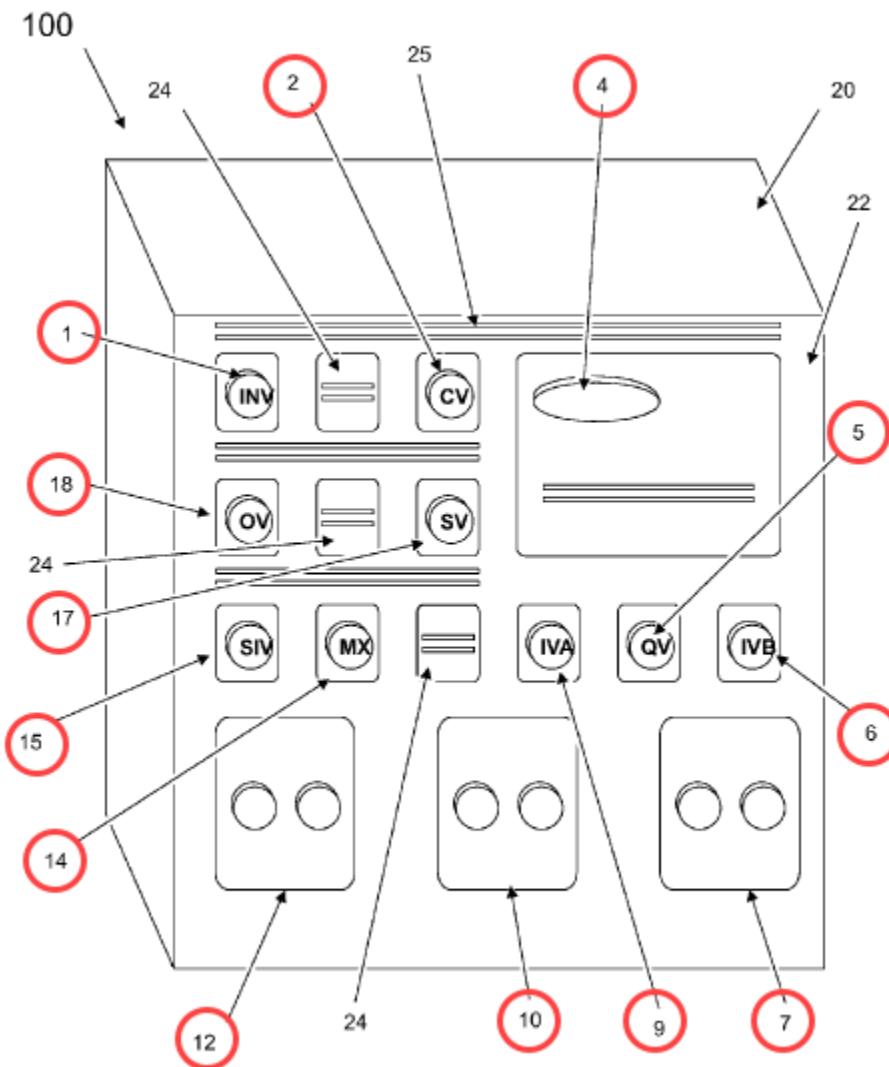


Fig. 2

Fig. 2 (annotated). The specification further identifies liquid handling components in two categories: (1) “a plurality of fluid control valves in the form of: Injection valve 1, Column valve 2, Quaternary valve 5, Inlet valve B 6, Inlet valve A 9, Sample inlet valve 15, pH valve 17, and Outlet valve 18”; and (2) additional components “UV monitor 4, System pump B 7, System pump A 10, Sample pump 12, [and] Mixer 14” 5:44-50. These are circled in red in Figure 2 above.

The import of these disclosures is that GE’s “with different functionality” proposal runs headlong against these disclosures, which describe modules as “readily interchangeable” even when they can only be changed with modules of like kind. *First*, the specification discloses that “*all* liquid handling components and sensors . . . are designed to be readily interchangeable” (5:50-53)—that is, *all* liquid handling components are “interchangeable modular components.” These “interchangeable modular components” include UV monitor 4, whose standardized size and shape differs from all other disclosed interchangeable modular components. *See also* ‘589 Patent, Cls. 3, 15, 26; ‘590 Patent, Cl. 6; ‘591 Patent, Cls. 17, 28, 29; ‘420 Patent, Cls. 10, 16; ‘124 Patent, Cl. 28 (including “UV monitor” among claimed “modular fluid handling units” or “interchangeable modular components”). In the preferred embodiment, UV monitor 4 is thus only interchangeable with another UV monitor component, which would be in order to replace a defective UV monitor. *See* 1:39-40.

Second, the “interchangeable modular components” of the preferred embodiment include system pump B 7, system pump A 10, and sample pump 12, each of which are depicted as identical pump components with a standardized size and shape that differs from all the other components in both Figures 1 and 2. Interchangeability of these pump modules means that they can be either replaced with a new pump module or exchanged with each other. In either case, the pump modules are not modules “with different functionality” but instead always constitute pumps having the same function—namely, to achieve liquid delivery. See 3:15-20 (“Each pump module consists of two pump heads (not shown). The individual heads are identical but actuated in opposite phase to each other by individual stepper motors, controlled by a microprocessor. The two pistons and pump heads work alternately to give a continuous, low pulsation, liquid delivery.”). GE’s requirement that “interchangeable modular components” requires exchanging components “with different functionality” is again contrary to the specification’s disclosure—here, its disclosure of three identical pump modules as “interchangeable modular components.”

Third, the specification’s disclosure of an embodiment in which “a plurality of fluid control valves of at least two different configurations [position locations], wherein at least the fluid control valves are arranged as interchangeable modular components” (2:44-47) further contradicts GE’s proposed “with different

functionality” language. The fact that fluid control valves may be placed in different locations, to control the fluid flow to different components, does not mean they have a different function. The function of the valves is always the same—to control the fluid flow to a particular component. *See, e.g.*, 3:26-36.

Because GE’s proposed addition of “with different functionality” would exclude the specification’s preferred embodiments in at least three ways, it cannot be correct: as the Federal Circuit has repeatedly held, “a claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.” *E.g., Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013) (quoting *On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH*, 386 F.3d 1133, 1138 (Fed. Cir. 2004)); *see also, e.g., Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1276 (Fed. Cir. 2008) (“We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification.”). Accordingly, because Bio-Rad’s proposed construction, but not GE’s addition of “with different functionality,” is consistent with the specification—which is “the single best guide to the meaning of a disputed term”—it is the correct claim construction. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

b. GE’s Proposal Is Not Supported By a Clear and Unequivocal Prosecution History Disclaimer

Given that neither the specification nor the claims support GE’s proposed construction, GE heavily relies on the prosecution history of the parent ‘718 Patent. *Supra* pp. 5-8. But the prosecution history “lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips*, 415 F.3d at 1317. Accordingly, the Federal Circuit has stated that “[t]he purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution.’” *Id.* (quoting *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005)).

None of GE’s cited prosecution history statements demonstrate any “clear and unmistakable” disclaimer, as Federal Circuit precedent requires in order for prosecution disclaimer to override the plain meaning of the term as read in light of the specification and the claims. *E.g., Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325-26 (Fed. Cir. 2003). This is so because GE’s principal basis for distinguishing prior art reference U.S. Patent Application Publication No. 2008/0035542 (“Mourtada”) during prosecution had nothing to do with the claimed interchangeability, but rather with Mourtada’s lack of separation of fluidics and non-fluidics. *See* D.I. 52, Ex. G at GEHC_001472 (“Applicants submit in Mourtada, there is no separation of fluidic and non-fluidic sections of the cassettes 105 and 203 which the Examiner considers to be equivalent to the fluid

handling units. Rather in Mourtada, fluidic sections appear to run on both sides of the cassette, for example fluid pipe 104 in Figures 9 &10 is shown both sides of cassette 105.”); *id.* at GEHC_001475-78 (“[I]f it were assumed that the valves etc. could be interchanged, then it appears that the respective fluidic and non-fluidic parts are not separated (as required by present claim 1) for example by the cassettes 105/203.”). GE’s Opening Brief entirely ignores this part of its own discussion of Mourtada during prosecution. And, in the more relevant prosecution of the ‘589 Patent, which GE selectively quotes from (*supra* p. 6), GE distinguished Mourtada only on the basis of (1) Mourtada’s failure to teach “a readily interchangeable modular fluid handling ***that includes a CPU,***” D.I. 52, Ex. F at GEBIO_DE_000000672; *see also id.* (“As such, Mourtada’s cassettes are the only replaceable or changeable portions described, and is distinguishable from the modular fluid handling units of the present claims ***in that it lacks a CPU.***”); (2) Mourtada’s disclosure of only two cassettes, rather than the claimed “at least four,” *id.*; and (3) Mourtada’s failure to “teach receiving positions arranged ***in a two dimensional array,***” *id.* This only further demonstrates that no clear and unmistakable disclaimer of “interchangeable modular components” as excluding components that can be replaced for components of like kind is evident from the applicant’s prosecution history statements.

Moreover, as to GE's statements during prosecution of the parent patent application regarding Mourtada and interchangeability, those statements themselves are ambiguous, making it improper to rely on them as a disclaimer that would alter the ordinary meaning of the disputed term. *See, e.g., Omega Eng'g, 334 F.3d at 1325-26.* Specifically, a person of ordinary skill in the art reading Mourtada and GE's statements about Mourtada would not understand the latter. The reason is that at paragraph [0064] in Mourtada, which is right between the paragraphs GE referred to during prosecution (D.I. 52, Ex. G at GEHC_001474), Mourtada states that:

The invention encompasses an array of different interchangeable specified (or specific) cassettes tailored to a variety of different . . . processes. The use of interchangeable cassettes permits users of the apparatus to rapidly adapt the device for a variety of different . . . techniques with ease Ideally, the cassettes can be replaced by simply snapping the tubing out from the valves and detaching the cassette from the base of the device

Ex. I, ¶ [0064]. One of ordinary skill in the art would read this passage to mean that the cassettes can be configured differently to perform different functions, making GE's argument about Mourtada purportedly failing to disclose “interchanging a component having *different* functionality” inconsistent with Mourtada itself and, thus, potentially inconsistent with GE's own statements about Mourtada during prosecution. This potential inconsistency necessarily renders GE's statements about Mourtada during prosecution ambiguous.

An additional source of ambiguity comes from the statement about Mourtada that GE now relies on—a statement that continued to say:

[W]hilst the cassettes . . . are replaceable or exchangeable with a differently configured cassette, they are not interchangeable with other components in the apparatus[,] . . . but not one which has modular components. Indeed, ***there is no suggestion in Mourtada that the valves etc. which are mounted to cassettes 105/203 could be modular.*** In practice they will not need swapping, because the cassette 105/203 is a complete assembly that will be replaced as a complete unit and not reconfigured in situ.”

D.I. 52, Ex. G at GEHC_001475. Again, a person of ordinary skill in the art would not understand this statement because, as shown above, paragraph [0064] in Mourtada states that cassettes configured differently can be swapped for one another. If anything, the emphasized language in the quote above indicates that GE’s point of distinction as to Mourtada’s disclosed interchangeability was actually focused on the individual valves that are present on the cassettes as being interchangeable rather than the cassettes themselves.

GE’s discussion of Mourtada thus fails to support a leap to concluding that, when modules are removable, they are not interchangeable unless they can be swapped with other modules “with different functionality,” especially given the inconsistency of that language with the embodiments disclosed in the specification.

See, e.g., Honeywell Int’l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (rejecting patentee’s reliance on a prosecution history statement where statement was “ambiguous and possibly inconsistent with the written description”).

Ultimately, the only unambiguous statement that GE made during prosecution is that, when components are not designed to be removed, one should not consider them interchangeable.

GE’s reliance on the coined term case law is misplaced, as “interchangeable modular component” is a term with an ordinary meaning one of ordinary skill in the art would understand by reading the claims themselves, especially as many claims provide numerous examples of such “interchangeable modular components.” This case is thus unlike GE’s cited case of *Iridescent Networks, Inc. v. AT&T Mobility, LLC*, 933 F.3d 1345 (Fed. Cir. 2019). There, the term at issue was “***high quality*** of service connection,” but the claims provided no indication to one of ordinary skill in the art as to what would constitute the claimed “high quality of service connection.” *Id.* at 1351. The Federal Circuit thus resorted to the specification and prosecution history to construe this coined term. *Id.* In doing so, the Federal Circuit concluded that the specification “is consistent with the prosecution history.” *Id.* By contrast, here, GE’s reliance on the prosecution history would contradict the specification by excluding preferred embodiments described therein—a result the Federal Circuit permits only where a disclaimer is “clear and unmistakable.” *E.g., Omega Eng’g*, 334 F.3d at 1325-26.

c. Bio-Rad’s Proposed Construction Is Supported by the IPR Proceedings

In the IPR proceedings related to the parent ‘718 Patent, GE itself proposed

construing the term “interchangeable fluid handling units . . . arranged as interchangeable modular components” to mean “fluid handling units of a standardized size and shape . . . arranged such that they may be readily replaced and exchanged with other standardized fluid handling units.” D.I. 52, Ex. H at GEBIO_DE_000003376. GE’s own proposed construction thus omitted any requirement that interchangeably involve only units “with different functionality” as GE now contends. GE now attempts to walk back from its own earlier proposed claim construction (and the IPR’s ultimate construction of the disputed phrase as “two or more fluid handling units of a standardized size and shape . . . arranged such that they may be used in place of other fluid handling units of the same standardized size and shape” (*id.* at GEBIO_DE_000003571)) on the basis of the PTAB’s then-different claim construction standard. *Supra* p. 8 n.5. However, this walk-back attempt ignores that GE itself contended that its proposed construction—with no requirement of “with different functionality”—merely implemented the plain meaning of “interchangeable,” for which GE cited a dictionary definition. D.I. 52, Ex. H at GEBIO_DE_000003374 (“interchangeable: that can be interchanged, esp., that can be put or used in place of each other” (citing Webster’s New World College Dictionary, 4th ed., 2010)). A patent owner’s contentions in an IPR are relevant intrinsic evidence. *See Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1361 (Fed. Cir. 2017) (holding that “statements

made by a patent owner during an IPR proceeding can be considered during claim construction”). In this case, these statements are more probative than the ambiguous prosecution history statements on which GE relies. And GE’s position in the IPR (as well as the PTAB’s claim construction) supports Bio-Rad’s proposed construction in this case.

3. Plaintiffs’ Reply Position

a. The specification supports GE

GE’s construction is correct because it is the only construction reflecting the goals of the invention. *See Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1368 (Fed. Cir. 2008) (examining the purpose of the limitation in the claimed invention, as evident from the specification in reaching claim construction). For example, the introductory section of the specification states that “[t]he present invention relates to the art of fluid handling system systems, and in particular to an automated fluid handling system that is ***highly flexible and configurable.***” 1:18-20. GE’s construction of “interchangeable modular component” captures that purpose.

In arguing for its construction, Bio-Rad takes one of the described goals (*i.e.*, replacement of defective units) out of context, and fails to account for the others. While the specification describes that “replacement of defect[ive] fluid handling units is a time consuming and delicate task” (1:39-40), this statement is

at the end of a description of the invention's goals, including the ability to "alter or optimize the fluid flow path of the system" (1:31-32) and "upgrad[e]" the system, and provide "flexibility in adapting the instrument to a variety of different applications" (1:44-46). The ability to replace defective fluid handling units is not lost under GE's construction; a user can still replace defective fluid handling units. However, the ability to perform that act *alone* does not fall within the scope of the claims.

Indeed, the specification describes fluid handling units that not only can be replaced, but also that are "designed to be readily interchangeable" and "[t]he interchangeability provides improved service and upgrade possibilities and also a possibility to customize the positions of the respective liquid handling components . . . in order to optimize the fluid path for a specific experimental setup." 5:53-57.

The optimization of fluid flow paths requires the interchanging of modules of different functionality. 5:53-57; *see also* 8:67-9:7. Bio-Rad ignores teachings regarding optimization of the fluid path, relying instead on the word "service" to support its position that interchangeability means replacement of defective fluid handling units. *See supra* p. 10. The entire phrase demonstrates that Bio-Rad is incorrect because the specification teaches customized placement for optimizing fluid path, which is not possible unless the components have different functionality.

Bio-Rad also points to description stating “[a]ccording to one embodiment, all liquid handling components and sensors arranged at the liquid handling panel 22 are designed to be readily interchangeable...” (5:50-53), accuses GE of selective quoting it, and asserts that this passage demonstrates that modules can be exchanged with modules of like kind. The complete passage, however, supports GE because it requires that each of the liquid handling components have “improved service and upgrade possibilities **and also** a possibility to customize the positions of the respective liquid handling components, **such as the fluid control valves**, e.g. in order to optimize the fluid path for a specific experimental setup.” 5:54-57 (emphasis added). The sentence separates the required functionality by the word “and,” meaning that the ability to interchange components of different functionality is not optional, but instead must be present.

Leseman, LLC v. Stratasyss, Inc., 730 Fed.App’x. 912, 914-5 (Fed. Cir. 2018) (holding that both terms separated by “and” must occur).

Moreover, even if Bio-Rad were correct that this disclosure supports its construction, it refers to only “one” embodiment, whereas none of the claims require that *all* of the components of an infringing system be “interchangeable modular components.” *See, e.g.*, ’590 Patent, cl. 1; ’591 Patent, cl. 1; ’420 Patent, cl. 1; *see also* 2:31-35; 6:47-51; 6:55-60. Instead, the claims require “two or more,” “three or more,” or “at least four” interchangeable modular components.

Id. Thus, any argument that specific disclosed embodiments describe one or a few non-interchangeable modular components is inapplicable—the claims only require two, three, or four interchangeable modular components.

Bio-Rad also argues that GE’s construction is incorrect because the specification allegedly provides an example where “fluid control valves are arranged as interchangeable modular components,” which it contends indicates that interchangeable fluid handling units need not be exchangeable with units of different functionality. *Supra* pp. 12-13. In fact, the specification describes a wide variety of valves having differing functionality: injection, column, Quaternary, inlet, pH, and outlet valves. 2:55-3:5. It also describes different functionalities of such valves. *See e.g.*, 3:55-56; 4:25-29. Thus, this passage does not undermine GE’s construction.

Bio-Rad also points to a figure to represent one of many embodiments Bio-Rad deems “preferred,” which Bio-Rad argues requires adoption of its construction. *Supra* pp. 13-14. As an initial matter, Bio-Rad never supports its identification of particular embodiments as “preferred” with evidence, and the specification never identifies any embodiments as “preferred.” Instead, the specification consistently used terminology such as “an embodiment,” “one embodiment” or “another embodiment,” plainly indicating disclosure of many different embodiments. *See, e.g.*, 1:65-67; *see also* 2:41-49; 3:6-25; 3:26-36.

Given that none of the many different embodiments are identified as preferred,

Bio-Rad's cases on this point (*supra* p. 14) are inapposite. *See, e.g., Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013).¹⁰

Bio-Rad also ignores that the claims do not require every fluid handling unit be interchangeable. Instead, the claims only require that “two or more” ('591 Patent, cl. 1, 17, 29; '420 Patent, cl. 17, 27; '124 Patent, cl. 16, 38), “three or more” ('420 Patent, cl. 1), or “at least four” interchangeable modular components meet this limitation ('589 Patent, cl. 1, 6). Thus, Bio-Rad's assertion that the UV monitor component would not be interchangeable with other modules based on its depiction in Figure 2 is inapplicable to how the claims are structured.

Additionally, “[i]t is not necessary that each claim read on every embodiment.” *Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010). The specification indicates that this depiction is only exemplary when stating that in one embodiment, the UV monitor 4 is “readily interchangeable,” which provides the “a possibility to customize the positions of the respective liquid handling components, such as the fluid control valves, e.g. in order to

¹⁰ Bio-Rad's reliance on *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1277 (Fed. Cir. 2008), is misplaced. *Oatey* held that “where claims can reasonably [be] interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.” *Id.* But it is Bio-Rad's construction that excludes embodiments where modules can be interchanged with others having different functionality.

optimize the fluid path for a specific experimental setup.” 5:48-57. Moreover, patent figures are generally illustrative, not limiting. *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1367 (Fed. Cir. 2002).

b. The prosecution history supports GE

As an initial matter, Bio-Rad asserts that “‘interchangeable modular component’ is not a coined term, but a term with an ordinary meaning one of ordinary skill in the art **would understand by reading the claims themselves.**” *Supra* p. 19 (emphasis added). Thus, according to Bio-Rad, prosecution history should only be examined for a “clear and unmistakable” disavowal. *Id.*

Other than saying so, Bio-Rad provides no evidence that “interchangeable modular component” had an ordinary meaning. Indeed, neither this term nor the similar ones at issue appear in any evidence of record (other than the patents-in-suit and the prosecution history), thus establishing that each are terms coined by the patentee. Where, as here, a disputed term has no ordinary meaning but was instead coined for use in the patents, the Court may rely on the prosecution history for guidance “without having to first find a clear and unmistakable disavowal.”

See Iridescent Networks, Inc. v. AT&T Mobility, LLC, 933 F.3d 1345, 1352–53 (Fed. Cir. 2019).

Bio-Rad attempts to overcome its failure to provide evidence of ordinary

meaning by asserting that “many claims provide numerous examples of such ‘interchangeable modular components.’” *Supra* pp. 19 But this purported evidence is from the Patents-in-Suit and not evidence of any plain and ordinary meaning beyond such patents. Moreover, these “examples” are directed to the functionality of the components, and are not evidence that the term “interchangeable modular component” had an ordinary meaning. Further, Bio-Rad has not pointed to any case law where the court utilized dependent claims to render a coined term no longer “coined.”

Under the standard for coined terms, “any explanation, elaboration, or qualification presented by the inventor during patent examination is relevant, for the role of claim construction is to ‘capture the scope of the actual invention’ that is disclosed, described, and patented.”” *Iridescent*, 933 F.3d at 1352-3 (quoting *Fenner Invs., Ltd. v. Celco P’ship*, 778 F.3d 1320, 1323 (Fed. Cir. 2015)). It is this very type of evidence that GE relies on for construction of this term. *See Supra* pp. 5-7.

Bio-Rad also asserts that “GE’s principal basis for distinguishing” Mourtada during prosecution had nothing to do with the claimed interchangeability, but rather with Mourtada’s lack of separation of fluidics and non-fluidics. *Supra* p. 15. This is incorrect. GE cites to a response to an obviousness rejection based on the combination of Mourtada and other references, while Bio-Rad points to a response

to an anticipation rejection based on Mourtada. *Compare* D.I. 52, Ex. G at GEHC_001472 (rejection under 35 U.S.C. § 102) *with id.* at GEHC_001473-001479 (rejection under 35 U.S.C. § 103). GE never identified either argument as being the “principal” one, and regardless, when an applicant relies on multiple grounds to distinguish over prior art, “any of those grounds may indicate the proper construction of particular claim terms” *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1477 n. * (Fed. Cir. 1998).

Bio-Rad further misstates the intrinsic record when discussing prosecution of the ’589 Patent. There, GE distinguished Mourtada, *inter alia*, by arguing *both* that Mourtada’s cassettes are “the only replaceable or changeable portion described,” *and* that Mourtada’s replaceable cassettes do not include a CPU. *See* D.I. 52, Ex. F at GEBIO_DE_000000672.¹¹

c. The PTAB construction is inapplicable

Bio-Rad also incorrectly relies upon GE’s constructions at the PTAB for the term “interchangeable fluid handling units . . . arranged as interchangeable modular components.” *Supra* pp. 19-21. GE proposed this construction under the

¹¹ Bio-Rad also advances its own interpretation of Mourtada—which is at odds with the discussion during prosecution—in attempting to show that the statements made during prosecution were incorrect or unnecessary. But even if true, this is irrelevant. The prosecution history of the patents is used during claim construction to “demonstrate[e] how the inventor understood the invention and whether the inventor limited the scope.” *Iridescent*, 933 F.3d at 1353.

broadest reasonable interpretation (“BRI”) standard under former 37 C.F.R. § 42.100(b) (“[a] claim in an unexpired patent that will not expire before a final written decision is issued shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.”), where the prosecution history is **not** considered. Ex. M at GEBIO_DE_000003374-9. Thus, GE’s BRI construction is not pertinent.

Bio-Rad relies on *Aylus Networks, Inc. v. Apple, Inc.*, 856 F.3d 1353, 1361 (Fed. Cir. 2017), but this case is inapplicable. *Supra* pp. 20-21. In *Aylus*, patentee made several statements during an IPR under the BRI standard in an effort to obtain a narrow construction, presumably to avoid the prior art. *Aylus*, 856 F.3d at 1362-3. Patentee then disregarded its narrowing statements in district court, instead seeking a broader interpretation (even though the district court proceedings were governed by the more restrictive standard under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005)(en banc)). *Aylus*, 856 F.3d at 1362-3. *Aylus* is thus distinguishable because unlike that case, GE acceded to a *broader* BRI construction during the IPR, but argues for a narrower construction here under the *Phillips* standard, at least in part due to consideration of prosecution history. Indeed, Bio-Rad’s argument makes no sense, as it asserts that GE disavowed claim scope when agreeing to a broader construction during the IPR. Bio-Rad fails to explain how this is disavowal since disavowal arises when an applicant

narrowss a construction during prosecution. *Grober v. Mako Prod., Inc.*, 686 F.3d 1335, 1341 (Fed. Cir. 2012).

4. Defendant’s Sur-Reply Position

GE’s Reply Brief evinces a misunderstanding of Bio-Rad’s proposed construction. Specifically, GE seems to believe that “Bio-Rad’s construction [] excludes embodiments where modules can be interchanged with others having different functionality.” *Supra* p. 25 n.10. Not so. While GE’s proposed construction excludes liquid handling systems in which modules can be interchanged with others having *the same* functionality, Bio-Rad’s proposed construction is more inclusive, and encompasses liquid handling systems with modules that can be interchanged with *any other modules*, whether having different or the same functionality. This misunderstanding pervades the arguments GE makes.

When considered in the proper light, Bio-Rad’s proposed construction is the correct one. To begin, GE’s leading argument that its construction “is correct because it is the only construction reflecting the goals of the invention” falls flat.¹² *Id.* p. 21. Bio-Rad’s construction encompasses what GE itself admits (in the very next paragraph) is “one of the described goals [of the invention] (*i.e.*, replacement

¹² *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1368 (Fed. Cir. 2008) (cited by GE) concerned the purpose of a limitation, not the goals of the invention.

of defective units)," *id.*—a goal **excluded** by GE's proposal. But Bio-Rad's construction also encompasses all the other goals of the alleged invention and thus, unlike GE's, encompasses all of the alleged invention's goals.¹³

Another argument GE makes in support of its construction is that “[t]he optimization of fluid flow paths requires the interchanging of modules of different functionality.” *Id.* p. 22 (citing 5:53-57, 8:67-9:7). But neither of the passages GE cites state that optimizing fluid flow paths requires interchanging components of different functionality. To the contrary, the second passage actually suggests that optimization of fluid flow paths may take place without interchanging any components at all: for example, by simply “minimiz[ing] the length/volume of one or more specific fluid paths.” 9:3-4. An example of this is illustrated below:

¹³ Accordingly, GE's reliance on the specific “and” conjunction the specification uses to describe the goals is misplaced, especially given that the case it relies on, *Leseman, LLC v. Stratasys, Inc.*, 730 F. App'x 912, 914-15 (Fed. Cir. 2018), deals with the use of “and” in the claim, **not** the specification.

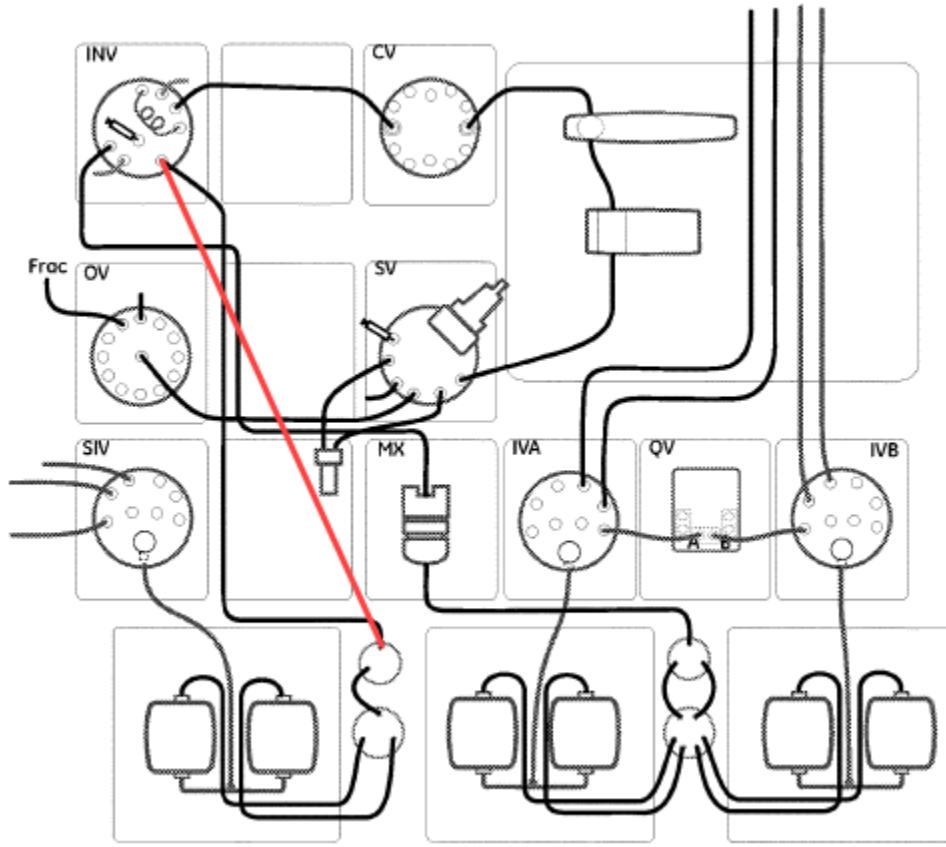


Fig. 10 (annotated). By reducing the length of one fluidic interconnection (as shown in red), the fluid flow path may be optimized by changing the routing of tubing, without interchanging any modular components at all.

GE's arguments about the claims referring only to "two or more" (or similar language) interchangeable modular components and about Bio-Rad relying on preferred embodiments are also misplaced. *Supra* pp. 23-24. As GE admits, the goals of the alleged invention entirely focus on the interchangeability of modular components. Having a system in which "two or more" of the modular components are interchangeable but the rest are not, as GE's argument would

imply, is thus inconsistent with the specification, in which *all* liquid handling components are consistently and exclusively described as modular, interchangeable components. The more appropriate way to read claim language such as “two or more” in light of the specification is that the claim could encompass a system with as few as two modular fluid handling components so long as *all* of the “two or more” components are interchangeable. This is consistently depicted in all of the embodiments described in the specification.

See, e.g., 2:50-3:14, 5:38-67, Figs. 1-2, 10. These embodiments all consistently show numerous interchangeable components, some of which can only be interchanged with other identical modular components (e.g., the larger UV monitor 4). A construction that properly takes this consistent description of the alleged invention in the specification into account is the correct one. *See, e.g.*, *Techtronic Indus. Co. v. ITC*, 944 F.3d 901, 909 (Fed. Cir. 2019) (limiting the claims because “the entire specification focuses on [one particular feature], which is . . . repeatedly set forth as the objective of the invention”).¹⁴

As to GE’s argument regarding prosecution history, it ignores that no clear

¹⁴ *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007), actually demonstrates that figures may be relied on as “preferred embodiments,” depending on the specification. And *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1367 (Fed. Cir. 2002), does not support GE because that case’s extrinsic evidence first, specification second approach was later rejected in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1319-22 (Fed. Cir. 2005) (en banc).

and unmistakable disclaimer can exist here because, otherwise, the prosecution history would be entirely inconsistent with the specification. *See supra* pp. 15-19. Specifically, GE’s argument would exclude the specification’s disclosed embodiments—which all show a UV monitor module that can only be interchanged with another UV monitor module. *See id.* pp. 9-12. Worse yet, it would also render claims covering said “UV monitor” inoperable in light of the specification’s disclosures. *See id.* p. 12. GE’s reading of the prosecution history therefore cannot be correct.¹⁵

Finally, as to the IPR proceedings, contrary to GE’s position that the prosecution history could not be considered before the PTAB, the Federal Circuit has held otherwise. *See Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014). GE’s own proposed construction in those proceedings therefore further demonstrates that Bio-Rad’s proposed construction of “interchangeable modular component” is the correct one.

B. “interchangeable modular fluid handling unit” (’590 Patent: 13, 14, 18, 20)

GE’s Construction	Bio-Rad’s Construction
“a fluid handling unit of standardized size and shape that may be used in place of another fluid handling unit of the same standardized size and shape	“fluid handling unit that can be inserted into and removed from positions in the housing [unit] and that has a

¹⁵ Bio-Rad cited to *Aylus Networks, Inc. v. Apple, Inc.*, 856 F.3d 1353, 1361 (Fed. Cir. 2017), only for the proposition that patentee statements made during PTAB proceedings are intrinsic evidence.

GE's Construction	Bio-Rad's Construction
with different functionality”	standardized size and shape that allows it to be exchanged with another fluid handling unit”

1. Plaintiffs' Opening Position

Both parties' constructions for the previous term, “interchangeable modular **component**” and this term, “interchangeable modular **fluid handling unit**,” differ only in the substitution of “fluid handling unit” for “component.” Both parties’ constructions for “interchangeable modular fluid handling unit” do nothing more than repeat their constructions for “interchangeable modular component,” except that the word “component” replaces “fluid handling unit” in the present term. In other words, neither party asserts that either “fluid handling unit” or “component” need construction.

This is consistent with the specification, which describes both “fluid handling units” and “components” that can be modular and interchangeable. *See, e.g.*, 6:51-54 (“provided that suitable fluid handling units are provided as interchangeable modular components for the system.”); 6:4-6 (“FIGS. 4a to 4d are schematic illustrations of examples of fluid handling units in the form of modular component of the fluid handling system removed.”). Moreover, the various descriptions in the specification apply to both fluid handling units and components. *Id.*

2. Defendant's Answering Position

The dispute surrounding this claim term is the same as that for the previous claim term. For the reasons outlined in Section II(A)(2) above, Bio-Rad's construction, which does not include any "with different functionality" language, is the correct one.

3. Plaintiffs' Reply Position

The dispute for this term is the same as "interchangeable modular component."

4. Defendant's Sur-Reply Position

See section II(A)(4) above.

C. "modular fluid handling unit" ('589 Patent: 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 15, 21, 22, 23)

GE's Construction	Bio-Rad's Construction
"a fluid handling unit of standardized size and shape that may be used in place of another fluid handling unit of the same standardized size and shape with different functionality"	"fluid handling unit that has a standardized size and shape that allows it to be exchanged with another fluid handling unit"

1. Plaintiffs' Opening Position

For the same reasons described in II(A) and II(B), the Court should adopt GE's construction for the term "modular fluid handling unit," which is the same as "interchangeable modular fluid handling unit," the term used in the other Asserted Patents for the same components.

Though the phrases “modular fluid handling unit” and “interchangeable modular fluid handling unit” have slightly different wording, it is clear from the intrinsic record that these phrases mean the same thing. While “interpretations that render some portion of the claim language superfluous are disfavored, where neither the plain meaning nor the patent itself commands a difference in scope between two terms, they may be construed identically.” *Power Mosfet Techs., LLC v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004); *see also Marine Polymer Techs., Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1359 (Fed. Cir. 2012) (“[c]laim differentiation is a guide, not a rigid rule.”). “It is not unusual that separate claims may define the invention using different terminology, especially where (as here) independent claims are involved.” *Mycogen Plant Sci., Inc. v. Monsanto Co.*, 243 F.3d 1316, 1329 (Fed. Cir. 2001) (quoting *Hormone Research Found., Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1567 n.15 (Fed. Cir. 1990)).

Claim differentiation cannot “apply untethered from the reasonable meaning of the difference in claim language on which it rests.” *Wi-Lan USA v. Apple Inc.*, 830 F. 3d 1374, 1391-2 (Fed. Cir. 2016).

Indeed, the Federal Circuit routinely construes different claim terms to have the same meaning. *See, e.g., Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010) (“releasably” and “detachable” construed to have the same meaning); *Edwards Lifesciences, LLC v. Cook Inc.*, 582 F.3d 1322, 1328 (Fed.

Cir. 2009) (“bifurcated base structure” and “bifurcated base graft structure” construed to have same meaning). While use of different terms can imply that they have different meanings, “that implication is overcome where, as here, the evidence indicates that the patentee used the two terms interchangeably.” *Baran*, 616 F.3d at 1316.

The terms at issue here are similar to the terms at issue in both *Baran* and *Edwards*. In particular, in both of those cases, the Federal Circuit held that different claim terms had the same construction because parties used the terms interchangeably in the specification. *Baran*, 616 F.3d at 1316; *Edwards*, 582 F.3d at 1328. The same is true here with respect to “modular fluid handling unit” and “interchangeable modular component.” For example, the specification of the Asserted Patents describes modular fluid handling units as a type of interchangeable modular components. *See, e.g.*, 6:4-13 (“FIGS. 4*a* to 4*d* are schematic illustrations of examples of **fluid handling units** in the form of **modular** components of the fluid handling system removed. FIG. 4*a* shows a standard **interchangeable modular component....**”). Thus, the disclosed modular fluid handling units are, by the specification’s description, interchangeable.

The specifications’ description of modular fluid handling units as being interchangeable modular components is consistent with the prosecution history. As discussed, when overcoming the Mourtada reference, applicant equated the

concepts of interchangeability and modularity, stating: “whilst the cassettes... are *replaceable or exchangeable with a differently configured cassette*, they are *not interchangeable* with *other components* in the apparatus... [t]hus, one skilled in the art reading Mourtada, would conclude that Mourtada shows a maintainable apparatus, but not one which has modular components.¹” D.I. 52, Ex. G at GE_001475 (emphasis added).

Additionally, in the two independent claims at issue, ’589 Patent claims 1 and 6, the claims further recite that the modular fluid handling unit “is readily interchangeable” (claim 1) and “freely arrangeable” (claim 6). This claim language is consistent with the description elsewhere in the intrinsic record that the modular units are at the very least interchangeable. *See, e.g.*, 6:4-13. Thus, the term “modular fluid handling unit” in the ’589 Patent should be given the same construction as the term “interchangeable modular fluid handling unit” in the other patents.

2. Defendant’s Answering Position

At core, the dispute with respect to this term is only about the “with different functionality” language. Once again, for the reasons outlined above in Section II(A)(2), Bio-Rad’s proposed construction, which omits that language, is the correct claim construction.

Other than that central dispute, to the extent there is any disagreement as to

whether “modular fluid handling unit” should mean something different from “interchangeable modular fluid handling unit,” there is no real issue: Independent claim 1 of the ‘589 Patent recites that “each modular fluid handling unit . . . is readily *interchangeable* amongst similarly sized and shaped receiving positions of the housing unit.” ‘589 Patent, Cl. 1. Similarly, independent claim 6 of the ‘589 Patent describes the “modular fluid handling units” as “*freely arrangeable* modular fluid handling units.” ‘589 Patent, Cl. 6. All claims reciting “modular fluid handling unit” thus also recite language similar or identical to the “interchangeable” language present in other Asserted Patents (discussed above in Sections II(A)(2) and II(B)(2)) in describing those “units.”

3. Plaintiffs’ Reply Position

The dispute for this term is the same as “interchangeable modular component.”

4. Defendant’s Sur-Reply Position

See section II(A)(4) above.

- D. “An automated liquid chromatography system comprising”/ “A method of modifying a fluid flow path in an automated liquid chromatography system comprising”/ “A method for building an automated liquid chromatography system, the method comprising”/ “A liquid chromatography system arranged to provide a controlled fluid flow through a chromatography column, the system comprising” ('589 Patent: 1, 6; '590 Patent: 1, 13; '591 Patent: 1, 17, 29; '420 Patent: 1, 17, 27; '124 Patent: 16, 38)

GE's Construction	Bio-Rad's Construction
Plain and ordinary meaning. The preamble is a limitation.	The preamble is not limiting.

1. Plaintiffs' Opening Position

The preambles should be accorded weight because they provide both antecedent basis for later claim elements and also because they give life, meaning, and vitality to the claims. *Catalina Marketing Intern. v. Coolsavings.com*, 289 F. 3d 801, 808 (Fed. Cir. 2002).

Dependent claims in each of the Asserted Patents confirm that the preamble is a limitation of the claims as they refer back to such language for antecedent support. See '589 Patent at claim 5 (“wherein the CPU automatically configures the modular fluid handling unit within *the liquid chromatography system* upon insertion into the receiving positions of the housing.”); '590 Patent at claims 2 (“...shortens the fluid flow path for *the liquid chromatography*.”), 6 (“...onto a column connected to the flow path of *the liquid chromatography system*”), 12 (“...for modifying *the liquid chromatography fluid flow path*.”), 17

(“...automatic identification by *the liquid chromatography system...*”); ’591 Patent at claim 16 (“...and to perform automatic configuration of *the system.*”); ’420 Patent at claim 10 (“...onto a column connecting a flow path of *the liquid chromatography system...*”); ’124 Patent at claim 44 (“...to a fluid flow path of *the liquid chromatography system...*”). A preamble that provides antecedents for ensuing claim terms limits the claim. *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (“When limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention.”). Here, the claim drafter clearly “[chose] to use both the preamble and the body to define the subject matter of the claimed invention.” *Bicon, Inc. v. Straumann Co.*, 441 F. 3d 945, 952 (Fed. Cir. 2006). Thus, the preambles are requirements of the claims. *Id.*

Additionally, courts regularly hold that claim preambles are limitations of claims where, like here, they give “life, meaning, and vitality to the claims.” *Catalina Marketing*, 289 F. 3d at 808. Indeed, the Federal Circuit has confirmed that a preamble “may be construed as limiting when it recites particular structure or steps that are highlighted as important by the specification.” *Proveris Sci. Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1372 (Fed. Cir. 2014); *see also Poly-America, LP v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (construing preamble as limiting where it disclosed a “fundamental characteristic

of the claimed invention”).

Here, the specification makes clear that a liquid chromatography system having the claimed features is an important embodiment of the invention. The specification states that the invention relates to “fluid handling systems” and describes “liquid chromatography systems” as one specific type of such systems. *See, e.g.*, 1:18-23; 2:41-43, 2:50-52. The preamble language raised for construction, including a “liquid chromatography system arranged to provide a controlled fluid flow through a chromatography column,” describes the fundamental characteristic of the claimed invention: that the system is a liquid chromatography system.

During the IPR proceedings for the parent ’718 Patent using the more expansive “broadest reasonable interpretation” claim construction standard, the PTAB held that the “preamble of claim 16 is functional language that recites an intended use [and] limits the scope of the claim to a system capable of performing liquid chromatography and capable of providing controlled fluid flow through a chromatography column.”¹⁶ D.I. 52, Ex. H at GEBIO_DE_000003573-4. While the PTAB states that the preamble “recites an intended use,” it is clear from the remainder of the PTAB’s construction for the preamble of claim 16 that the PTAB

¹⁶ GE’s claim construction for the underlying phrase of the preamble is consistent with the PTAB’s construction. *See II(E) and (F), infra.*

determined that the claim should be given patentable weight. *Id.* (“Thus, the phrase ***limits the scope*** of the claim” (emphasis added)).

The PTAB also went on to point to the liquid chromatography limitation in determining that cited art did not anticipate the relevant claims. *See id.* at GEBIO_DE_000003583-4 (“Petitioner does not establish sufficiently that the [cited art] discloses a system capable of performing liquid chromatography or capable of providing controlled fluid flow through a chromatography column.”) This further demonstrates that the PTAB accorded the preambulatory phrase patentable weight.

2. Defendant’s Answering Position

“Generally, the preamble does not limit the claims.” *Georgetown Rail Equip. Co. v. Holland L.P.*, 867 F.3d 1229, 1236 (Fed. Cir. 2017) (quoting *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002)). Notwithstanding this general rule of claim construction, GE nevertheless seeks to have the “automated liquid chromatography”/“liquid chromatography” language of these claims’ preambles limit the claims, citing a mishmash of reasons for doing so.

None of those reasons holds water. *First*, the Federal Circuit has held that, “[w]hen limitations in the body of the claim ***rely upon*** and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the

claimed invention.” *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2009). Antecedent basis alone is not sufficient. For example, in *Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283 (Fed. Cir. 2015), the Federal Circuit found a preamble not to be limiting despite the antecedent-basis use of terms in claim limitations. *See id.* at 1287-88, 1292 (finding preamble “[a] computer implemented method for pre-processing digital content in a client device for subsequent electronic distribution” not limiting notwithstanding claim body’s antecedent-basis use of “said client device” and limitations requiring “pre-processing said digital content at said client device” and “transmitting a message from said client device to said server device for subsequent distribution”). Indeed, in *Summit 6*, the Federal Circuit reasoned that the preamble was not limiting because it was “duplicative of the limitations in the body of the claim and merely provide[d] context for the limitations.” *Id.* at 1292. As in *Summit 6*, the “liquid chromatography” language in the preambles here merely provides context. Further, in the ‘591 Patent, the preamble is duplicative of a limitation in the body of the claims. *E.g.*, ‘591 Patent, Cl. 1 (“An automated liquid chromatography system comprising: . . . wherein the system ***is capable of performing automated liquid chromatography.***”). The reasoning of *Summit 6* is particularly applicable here, where GE identifies only eight scattered, ***dependent*** claims that refer back to the preamble among the over a hundred claims it has asserted in this case (*see*

supra pp. 41-42), demonstrating that the preamble merely provides context for the limitations—context that is unnecessary for the bulk of *independent* claims.

Second, GE’s attempt to recast the preambles as providing “life, meaning, and vitality to the claims” based on the preambles’ purported recital of “particular structure or steps that are highlighted as important by the specification” fails in light of its own cited case law. *Supra* pp. 42-43 (quoting *Catalina Marketing Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002); *Proveris Sci. Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1372 (Fed. Cir. 2014)). That the “liquid chromatography” language in the preamble does not recite structure, nor is highlighted as important by the specification, is evident from a comparison to GE’s cited cases. Specifically, in *Proveris*, the preamble whose limiting nature was disputed recited: “An apparatus for producing image data representative of at least one sequential set of images of a spray plume, each of the images being representative of a density characteristic of the spray plume (i) along a geometric plane that intersects the spray plume, and (ii) at a predetermined instant in time.” 739 F.3d at 1372. The Federal Circuit found it limiting because “the specification identifies the invention as producing a ‘sequential set of images’ and focuses on the ability of the invention to capture ‘the time evolution of the spray,’” such that “the preamble . . . is the only reference in any independent claim to the inventive concept of capturing a sequence of images in order to characterize the time

evolution of the spray plume.” *Id.* at 1372-73. Similarly, in *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945 (Fed. Cir. 2006), the claim’s preamble recited substantial structure of an “abutment” placed during a medical procedure using the claimed “emergence cuff member.” *Id.* at 948. The body of the claim went on to define structural limitations of the claimed “emergence cuff member” by reference to the structural limitations of the “abutment” recited solely in the preamble. *Id.* at 948-49. Because the body of the claim relied on the preamble’s recitation of structural limitations, the Federal Circuit held that the preamble was a limitation, finding that it “recite[d] essential elements of the invention,” such that “the claim drafter chose to use both the preamble and the body of the claim to define the subject matter of the claimed invention.” *Id.* at 952-53.¹⁷

By contrast, none of the preambles of the claims at issue here recite structural limitations or disclose the inventive concept. For example, claim 1 of the ‘589 Patent recites the key structural limitations—a housing unit and at least four modular fluid handling units—in the body of the claim, not the preamble: “An automated liquid chromatography system ***comprising a housing unit and at least four modular fluid handling units.***” Moreover, the Asserted Patents’

¹⁷ The same is true of *Eaton*, in which the Federal Circuit found the preamble to be limiting because the first step recited in the body of the claim “refer[red] to structure that is identified and defined in the preamble: the vehicle master clutch and a drive train.” 323 F.3d at 1339.

specification admits that liquid chromatography systems were known in the art. 1:41-44 (“One type of liquid handling system is liquid chromatography systems which is a standard method in laboratories, and there are a broad range of liquid chromatography systems available on the market.”). Nor is liquid chromatography a “fundamental characteristic of the claimed invention.” *Supra* pp. 42-43 (quoting *Poly-Am., LP v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004)).¹⁸

Cases involving claims analogous to those here confirm that the preambles in the claims at issue are not limiting. For example, the Federal Circuit found claim preambles reciting “[a] power distribution module for a personal recreational vehicle” and “a personal recreational vehicle” not to be limiting in *Arctic Cat Inc. v. GEP Power Products, Inc.*, 919 F.3d 1320, 1328-30 (Fed. Cir. 2019). As to the preamble reciting “[a] power distribution module for a personal recreational vehicle,” the court reasoned that “the reference to a ‘personal recreational vehicle’ merely identifies an intended use for the claimed power

¹⁸ In *Poly-America*, “the inventor considered that the ‘blown-film’ preamble language represented an important characteristic of the claimed invention.” 383 F.3d at 1310. The Federal Circuit made this finding because “[t]he specification [wa]s replete with references to the invention as a ‘blown-film’ liner, including the title of the patent itself and the ‘Summary of the Invention.’” *Id.* Here, the title and summary of the invention both indicate that the invention is an “automated fluid handling system,” with no mention of liquid chromatography. *See, e.g.*, ‘589 Patent Title, 1:50-59.

distribution module.” *Id.* at 1328. As to the preamble reciting “a personal recreational vehicle,” the court noted that though it disclosed *some* additional structure beyond what was in the body of the claim, reasoning that “[w]hat is missing in the specification is any identification of a feature of the vehicle that is asserted to be an improvement other than the ‘power distribution module’ as described in the various claims,” such that “[t]he vehicle in the preamble is entirely conventional apart from the improvement in the body of the claims.” *Id.* at 1329. Thus, in the Federal Circuit’s view, the fact that the minimal structure recited in the preamble was entirely conventional distinguished *Arctic Cat* from cases holding preambles to be limiting, such as *Proveris*. Here, too, the recitation of “liquid chromatography” in the preambles is entirely conventional, as admitted in the specification. 1:41-44. Moreover, “liquid chromatography” does not even connote *any* structure, making the preamble not limit the claims at issue here to an even greater extent than those in *Arctic Cat*.

Similarly, in *Catalina*, the claim preambles recited “[a] system for controlling the selection and dispensing of product coupons at a plurality of remote terminals *located at predesignated sites such as consumer stores.*” 289 F.3d at 805-06 (emphasis in original). The court outlined the general scenarios when a preamble is not limiting, including “[p]reambles describing the use of an invention,” “because the patentability of apparatus or composition claims depends

on the claimed structure, not on the use or purpose of that structure.” *Id.* at 809.

In part for that reason, the court found the preamble not to be limiting, further stating that “[t]o hold otherwise would effectively impose a method limitation on an apparatus claim without justification.” *Id.* at 810. GE’s attempt to make the preambles here limiting would make apparatus claims turn on the use for which the claimed automated fluid handling system components are used for—liquid chromatography—in contravention of *Catalina* and other Federal Circuit cases.

See, e.g., Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1468 (Fed. Cir. 1990) (“[A]pparatus claims cover what a device *is*, not what a device *does*.” (emphasis in original)).

Importantly, in both *Arctic Cat* and *Catalina*, the Federal Circuit explained that “deletion of the disputed phrase from the preamble . . . [would] not affect the structural definition or operation of the [invention] itself.” *Arctic Cat*, 919 F.3d at 1329 (quoting *Catalina*, 289 F.3d at 810) (omission and alterations in original).

So too here: deleting “liquid chromatography” (or “automated liquid chromatography”) from the claims’ preambles would not affect the structural definition or operation of the claimed modular fluid handling system described in the body of the claims. As in *Arctic Cat* and *Catalina*, the preambles cannot be limiting.

3. Plaintiffs' Reply Position

Each preamble is limiting and Bio-Rad's assertions to the contrary are wrong.

a. The preamble provides antecedent basis

The first reason that the preamble is limiting is that it provides antecedent basis for limitations in the body of the claims. Bio-Rad argues that antecedent basis alone is insufficient to render a preamble limiting by pointing to the phrase “”[w]hen limitations in the body of the claim **rely upon** and derive antecedent basis from the preamble...” from *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2009). Bio-Rad implies that the body of the claims here do not **rely upon** the preamble (*Supra* pp. 44-45) (even if it provides antecedent basis), and that “the preamble here merely provides context.” *Supra* p. 45. Bio-Rad cites only one case, *Summit 6, LLC v. Samsung Electronics Co.*, 802 F.3d 1283 (Fed. Cir. 2015), for this assertion, and that case does not support Bio-Rad. *Supra* pp. 45 (citing *Summit 6*, 802 F.3d at 1287-8, 1292).

In *Summit 6*, the court did not address whether the preamble provided an antecedent basis. In fact, the court was clear that antecedent basis was *not* considered in its determination of whether the preamble was limiting. *Id.* at 1292 (“Samsung does **not** contend that the preamble to claim 38 is necessary to provide antecedent basis or that the applicant placed clear reliance on the preamble during

prosecution.”) (emphasis added). Accordingly, Bio-Rad has provided no legal support for its argument that providing antecedent basis alone is insufficient to render a preamble a limitation. Indeed, the Federal Circuit has repeatedly held that preambles were limiting solely because they provided antecedent basis. *See e.g. Pacing Technologies, LLC v. Garmin International, Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015); *Electro Scientific Industries, Inc. v. Dynamic Details, Inc.*, 307 F.3d 1343, 1348 (Fed. Cir. 2002); *Mayne Pharma Int'l Pty Ltd. v. Merck & Co, Inc.*, C.A. No. 15-438-LPS, 2016 WL 7441069 at *7 (D. Del. Dec. 27, 2016).

b. The preamble gives “life, meaning and vitality” to the claims

A second reason that the preamble is limiting is because it is necessary to give “life, meaning, and vitality to the claim.” *Proveris Sci. Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1372 (Fed. Cir. 2014). This happens, for example when a preamble recites particular structure or steps that are highlighted as important by the specification (*id.*), or if it describes a “fundamental characteristic of the invention.” *Poly-America, LP v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004).

(i) The preamble recites a structure the specification indicates is important

Bio-Rad attempts to distinguish the applicability of *Proveris* and *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 948-9, 952-3 (Fed. Cir. 2006), by arguing that

the preambles here do not recite a structure like those cases.¹⁹ *Supra* pp. 46-47.

But the preamble here does recite a structure highlighted as important by the specification: a liquid chromatography system. *Supra* p. 43.

Bio-Rad relies on *Arctic Cat Inc., v. GEP Power Products, Inc.*, 919 F.3d 1320 (Fed. Cir. 2019) and *Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801 (Fed. Cir. 2002), to argue that the structure in the present preamble is insufficient. Neither case supports Bio-Rad. In *Arctic Cat*, the phrase “personal recreation vehicle” was only a part of a preamble, which recited “[a] power distribution module **for a** personal recreational vehicle” (emphasis added). *Id.* at 1327-8. This “for a...” language plainly recites an intended use that did not limit the claim to a personal recreational vehicle. In contrast, the preamble here claims a “liquid chromatography system” and is akin to construing the term “power distribution module,” which was not at issue in *Arctic Cat*. *Id.* More similar to the present case is *In re Fought*, 941 F.3d 1175 (Fed. Cir. 2019), which held that the preamble “travel trailer” was limiting since it denoted structure and not an intended use. *Id.* at 1179 (“Towability is a structural difference, not an intended use. A living area is likewise a structural requirement.”).

¹⁹ Bio-Rad argues that *Eaton* is distinguishable for the same reason. *Supra* p. 47, n. 17. While GE did not cite *Eaton* for this proposition, the case supports GE because the preamble in *Eaton* recited a structure. 323 F.3d at 1339 (describing the structure as a “vehicle master clutch and a drive train.”)

In *Catalina*, the phrase “located at predesignated sites such as consumer stores” (of the larger preamble “[a] system for controlling the selection and dispensing of product coupons at a plurality of remote terminals located at predesignated sites such as consumer stores”) was held not limiting because the phrase only recited an intended use. 289 F.3d at 809-10. However, like in *Proveris*, *Bicon* and *Fought*, the phrase at issue here recites a structure, and is more akin to the “system for controlling the selection...” than the “located at...” language actually construed in *Catalina*. Thus, both *Arctic Cat* and *Catalina* are distinguishable from the present case. And the “deletion of the disputed phrase from the preamble” **would** impact the “structural definition or operation of the [invention] itself” (*Arctic Cat*, 919 F.3d at 1329) because the preamble recites a structure: a liquid chromatography system.

- (ii) The preamble describes a “fundamental characteristic of the claimed invention”

The preambles recite a “fundamental characteristic of the invention” that are important embodiments of the invention: liquid chromatography systems. *Supra* p. 43; *see also Poly-America*, 383 F.3d at 1310. Bio-Rad says otherwise, arguing that **liquid chromatography** is not a “fundamental characteristic of the claimed invention.” *Supra* p. 48. This argument is plainly wrong, as the specification states that a **liquid chromatography system** having the claimed features is a narrower embodiment of the invention. The patent describes “one

embodiment” as being “an automated fluid handling system.” *See e.g.*, 2:31-32.

The specification describes “another embodiment,” which is “a fluid handling system in the form of a liquid chromatography system...” 2:41-43. This demonstrates that liquid chromatography systems are not just a fundamental characteristic of the claimed invention, but in fact are a specific embodiment.²⁰ Thus, the specification distinguishes between a broad class of systems, *e.g.*, fluid handling systems, and more specific types, *i.e.*, liquid chromatography systems. This plainly indicates that the preambles at issue, all of which recite the narrower “liquid chromatography system,” breathe life, meaning, and vitality to the claim.

Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305-6 (Fed. Cir. 1999).

Bio-Rad tries to distinguish *Poly-America*, by arguing that the title²¹ and “summary of the invention” portion of the specification do not support GE’s argument that liquid chromatography systems are a fundamental characteristic of the invention. *Supra* p. 48, n.18. Yet, Bio-Rad points to no case law holding that the title and summary of the invention portion of the specification are the only places to look when determining the fundamental characteristics of the invention.

²⁰ The specification identifies filtration and chemical synthesis systems as other types of fluid handling systems. 1:18-23.

²¹ A patent’s title is typically completely irrelevant for claim construction purposes. *Pitney Bowes*, 182 F.3d at 1312–13.

Indeed, in *Poly-America*, “[t]he specification [wa]s replete with references...” to the preamble’s language, which was “used repeatedly to describe the preferred embodiments...” 383 F.3d at 1310.

Similarly here, the specification “is replete with references” (*id.*) to liquid chromatography systems, including a description in the “Background of the Invention,” and a representation in Figures 1, 2, 6, 7, 8, and 9. 1:41-46; 1:65-67 (describing FIG. 1); 2:50-3:5 (describing FIG. 1); *see also* 4:65-5:7; 5:28-29; 5:38-41 (describing FIG. 2); 7:49-52 (describing FIG. 6); 7:59-62 (describing FIG. 7); 8:3-5 (describing FIG. 8); 8:47-49 (describing FIG. 9); *see also Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989) (emphasis added) (“The effect preamble language should be given can be resolved only on review of the *entirety of the patent* to gain an understanding of what the inventors actually invented and intended to encompass by the claim.”).

c. GE relied upon the preamble to distinguish prior art during prosecution

The prosecution history further demonstrates that the preamble is a limitation, a factor Bio-Rad ignores. The claims of the ’718 Patent (the ultimate parent to the patents-in-suit) had independent claims where the preambles recited (i) fluid handling systems (claim 1); and (ii) liquid chromatography systems (claim 16). In the IPR challenging the ’718 Patent, GE asserted and the Board agreed that the preamble of claim 16 was limiting, and thus declined to institute

trial on that claim because the prior art Bio-Rad relied on did not teach liquid chromatography systems. GEBIO_DE_000003583-4. When elements recited in a preamble are used to distinguish over the prior art during prosecution, they are limitations. *See Novatek, Inc. v. Sollami Co.*, 559 Fed.App'x. 1011, 1015 (Fed. Cir. 2014) (stating that “clear reliance on the preamble during prosecution to distinguish the claimed invention from prior art transforms the preamble into a claim limitation”). Moreover, during prosecution of the patents-in-suit (which took place after the IPR), GE relied on the PTAB’s determination by thereafter including liquid chromatography system limitations in the preambles of claims it prosecuted (*see, e.g.*, ’589 Patent, cl. 1, 6; ’590 Patent, cl. 1, 13; ’591 Patent, cl. 1, 17, 29; ’420 Patent, cl. 1, 17, 27; and ’124 Patent, cl. 16, 38), and GE’s reliance further demonstrates that the preambles are limiting. *Novatek*, 559 Fed.App'x. at 1015.

4. Defendant’s Sur-Reply Position

The preambles reciting “liquid chromatography” are not limiting. The Federal Circuit cases GE relies on regarding antecedent basis establish that the preamble is limiting only if the claim body ***both “relies] upon and derive[s]*** antecedent basis.” *Pacing Techs., LLC v. Garmin Int'l, Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015); *Electro Sci. Indus., Inc. v. Dynamic Details, Inc.*, 307 F.3d 1343, 1348 (Fed. Cir. 2002). In those cases, removing the language at issue would

render the claims nonsensical, making the reliance of the claim body on the preamble clear. *See Pacing Techs.*, 778 F.3d at 1022 (removing “user” language at issue would render claim unintelligible); *Electro Sci.*, 307 F.3d at 1347 (same, regarding “circuit boards” claim language). Here, removing “liquid chromatography” from the preamble does not affect the claims.

GE next attempts to undermine Bio-Rad’s reliance on *Arctic Cat Inc. v. GEP Power Products, Inc.*, 919 F.3d 1320, 1327-28 (Fed. Cir. 2019), and *Catalina Marketing International, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809-10 (Fed. Cir. 2002), because the preamble language at issue in those cases purportedly recited uses rather than structure. GE points instead to “power distribution module” in the *Arctic Cat* preamble and “a system for controlling the selection” in the *Catalina* preamble as more analogous to the claim here. *Supra* p. 53. But both phrases weren’t even alleged to be limiting in those cases, as overcoming the general rule that preambles are not limiting would have been impossible: any structure connoted by those phrases is described in the bodies of the claim in both cases—as is any structure of the claimed “liquid chromatography system” here (e.g., “a housing unit” and “at least four modular handling units” in ‘589 patent

claim 1). Like the preambles in *Arctic Cat* and *Catalina*, the preambles here cannot be limiting.²²

Nor does the “liquid chromatography” preamble language here describe a “fundamental characteristic of the claimed invention,” given the claimed invention’s focus on modularity and interchangeability in the context of automated liquid handling systems (*e.g.*, 1:50-53).²³ The “liquid chromatography” aspect of the claimed system is not novel in any way, as the specification itself admits. 1:41-44 (“One type of liquid handling system is liquid chromatography systems which is a standard method in laboratories, and there are a broad range of liquid chromatography systems available on the market.”).

GE’s reliance on the IPR proceedings to support its position is misplaced as well. It has failed to cite *any* evidence demonstrating reliance on the PTAB’s determination in the prosecution history of *any* of the asserted patents in this case. *See supra* p. 57. Coupled with the PTAB’s other statements regarding the “liquid chromatography” language, which it described as “an intended use” (and therefore should not be limiting under controlling precedent such as *Catalina*), *see infra* pp.

²² Unlike *Arctic Cat* and *Catalina*, *In re Fought*, 941 F.3d 1175, 1177-79 (Fed. Cir. 2019), involved preamble language (“travel trailer”) that necessarily connoted structure (“towability” and “living quarters”) absent from the claim body. *See id.* at 1177.

²³ Variants of “modular” and “interchangeable” appear in the specification well over 50 times.

62-63 (quoting D.I. 52, Ex. H at GEBIO-DE_000003573), this failure fatally undermines GE's reliance on the IPR proceedings.

E. “liquid chromatography system” (’124 Patent: 16, 38)

GE’s Construction	Bio-Rad’s Construction
“a system capable of performing liquid chromatography”	To the extent this is a limitation, “a fluid handling system that has components that can deliver controlled fluid flow through a liquid chromatography column”

1. Plaintiffs’ Opening Position

GE construction for “liquid chromatography system,” which appears in both preambles and bodies of claims, is consistent with the construction adopted by PTAB during the ’718 Patent IPR for the claim language: “[a] *liquid chromatography system* arranged to provide a controlled fluid flow through a chromatography column.” ’718 Patent at claim 16 (emphasis added). The PTAB’s construction was “*a system capable of performing liquid chromatography* and capable of providing controlled fluid flow through a chromatography column.” D.I. 52, Ex. H at GEBIO_DE_000003573-4. Thus, the PTAB construed a “liquid chromatography system” to be “a system capable of

performing liquid chromatography.”²⁴ *Id.* While this Court is not bound by the PTAB’s construction, it should adopt the construction as it is the plain and ordinary meaning and nothing in the implicit record compels a different result.

SunPower Corp. v. PanelClaw, Inc., C.A. No. 12-1633-MPT, 2016 WL 1293479, at *6 (D. Del. Apr. 1, 2016) (although the court is not bound by the PTAB’s construction, “it is not improper for the court to take the PTAB’s claim construction into consideration, particularly where that construction was similar to that of a district court’s review.”) (internal citations omitted).

2. Defendant’s Answering Position

This phrase appears in the preamble of claims 16 and 38 of the ‘124 Patent and cannot be limiting as discussed above. *See supra*, § II(D)(2). Even if the preamble is found to be limiting, this phrase (especially as GE proposed to construe it) appears to improperly state an intended use of the claimed machine rather than particular structural features. *See Hewlett-Packard*, 909 F.2d at 1468 (“[A]pparatus claims cover what a device *is*, not what a device *does*.” (emphasis in original)). Regardless of whether this phrase appears in the preamble or elsewhere (in dependent claim 44), it is a statement of intended use that is not

²⁴ As can be seen, the language “controlled fluid flow through a chromatography column” was recited in the claims of the ’718 patent, which is why the PTAB also included it in its construction. The fact that this language was separately recited further demonstrates why it should not be included in the construction of “liquid chromatography system.”

limiting and should not be given patentable weight. *See In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997) (holding that a statement of intended use did not have patentable weight); *In re Anderson*, 662 F. App'x 958, 963 (Fed. Cir. 2016) (holding that “for use” statements in the body of the claim were not limiting).

To the extent it is a limitation, a “liquid chromatography system” means a system that has the components necessary to perform the function of liquid chromatography, which involves delivering controlled fluid flow to a column. These components include a controllable pump and a valve. *See* 2:42-45 (two pumps, a sensor unit, and a plurality of valves). This construction is consistent with claim 16, which calls for as few as two interchangeable fluid handling units, and with claim 38, which calls for two double piston pumps and at least one valve.

Moreover, the body of claim 38 recites that “the system is capable of performing automated liquid chromatography.” GE’s proposed construction would improperly render this limitation superfluous. *See Merck & Co. v. Teva Pharmas. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”); *Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (“[I]nterpretations that render some portion of the claim language superfluous are disfavored . . .”).

GE points to the claim construction adopted by the PTAB during the IPR

proceedings regarding the parent ‘718 Patent (*supra* pp. 60-61), but even the PTAB found “that the phrase ‘a liquid chromatography system arranged to provide a controlled fluid flow through a chromatography column’ . . . recites an intended use.” D.I. 52, Ex. H at GEBIO_DE_000003573. Moreover, the claims of the ‘718 Patent did not include “the system is capable of performing automated liquid chromatography.” GE added this limitation during the re-issue proceedings of the ‘718 Patent (which resulted in the ‘124 Patent) (*compare* D.I. 52, Ex. E, Cls. 1, 16, *with id.*, Cl. 38), and thus “liquid chromatography system” should not be construed to render this claim amendment superfluous.²⁵

3. Plaintiffs’ Reply Position

Bio-Rad contends that “liquid chromatography system” is an intended use. As discussed in Section II(D), this is plainly not a mere intended use, as “liquid chromatography systems” are structures. Thus, Bio-Rad’s construction impermissibly broadens the claims. “Courts can neither broaden nor narrow the claims to give the patentee something different than what he set forth [in the claim].” *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396 (Ct. Cl. 1967).

²⁵ GE also argues that because “controlled fluid flow through a chromatography column” was separately recited in the ‘718 Patent, it should not be included in the construction of “liquid chromatography system.” *Supra* p. 61 n.24. However, this language is further non-limiting language of intended use in the claim preambles, and Bio-Rad’s proposed construction includes actual limiting structure—“components” that can perform such intended use.

Bio-Rad argues that GE's construction of "a system capable of performing liquid chromatography" would render the limitation "the system is capable of performing **automated** liquid chromatography" in Claim 38 of the '124 Patent superfluous. *Supra* p. 62. But the wherein clause of claim 38, where the phrase Bio-Rad relies on is found, requires that the liquid chromatography system perform "automated" liquid chromatography, which is narrower than GE's construction. Also, the fact that Bio-Rad highlights the antecedent basis provided by the preamble in this claim is actually proof that it is limiting.

Finally, Bio-Rad ignores GE's argument regarding the PTAB's holding that the preamble is limiting. The PTAB construed "liquid chromatography system" to be "a system capable of performing liquid chromatography." Instead, Bio-Rad focuses solely on the PTAB's intermediate finding that the statement recited an intended use. While this Court is not bound by the PTAB's construction, it should adopt it because it is the plain and ordinary meaning and nothing in the intrinsic record compels a different result. *SunPower Corp. v. PanelClaw, Inc.*, C.A. No. 12-1633, 2016 WL 1293479, at *6 (D. Del. Apr. 1, 2016).

4. Defendant's Sur-Reply Position

GE contends that "liquid chromatography systems" are structures. *Supra* p. 63. However, it has not identified any structure of the system that is not already recited by the body of the claim. As discussed above in Section II(D)(4), any

structure connoted by “liquid chromatography system” is described in the bodies of the claims. *See id.* pp. 58-59. Thus, “liquid chromatography system” is an intended use that is not limiting, and this construction would not “impermissibly broaden[] the claims” as GE contends. *Id.* p. 63.

To the extent “liquid chromatography system” is a limitation, GE’s proposed construction is incorrect. GE’s argument that the language “system is capable of performing automated liquid chromatography” in ‘124 patent claim 38 is not superfluous because it requires “automated” liquid chromatography misses the mark. If “liquid chromatography system” is construed as GE proposes, this limitation—that the system be a “*liquid chromatography* system”—is rendered superfluous because the body of claim 38 already recites that the system is capable of performing liquid chromatography, and that it does so automatically. *See Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

GE finally argues that the Court should adopt the PTAB’s construction that the preamble is limiting. *Supra* p. 64. The PTAB correctly found that the preamble recites an intended use but then stated that the phrase “limits the scope of the claim” without explanation. Because the term “liquid chromatography system” as construed by GE describes nothing about the structure of the system, it

is not limiting. *Textron Innovations Inc. v. American Eurocopter Corp.*, 498 F. App'x 23, 28 (Fed. Cir. 2012) (“In cases in which functional language adds a structural limitation to an apparatus claim,” it is limiting “because the language ***describes something about the structure of the apparatus*** rather than merely listing its intended or preferred uses.” (emphasis added)).

F. “automated liquid chromatography system” ('589 Patent: 1, 6; '590 Patent: 1, 13; '591 Patent: 1, 17, 29; '420 Patent: 1, 17, 27)

GE's Construction	Bio-Rad's Construction
“a system capable of performing automated liquid chromatography”	To the extent this is a limitation, “a fluid handling system that has components that can automatically deliver controlled fluid flow through a liquid chromatography column”

1. Plaintiffs' Opening Position

Like the term “liquid chromatography system” addressed in Section II(E), the term “automated liquid chromatography system” appears both in claim preambles and claim bodies. The only difference between this term and the term “liquid chromatography system” is the presence of the word “automated.” Thus, GE’s construction for this term adds the word “automated” to its construction of “liquid chromatography system.” Bio-Rad has done essentially the same thing, making it clear that the Partes agree that “automated” needs no further construction.

2. Defendant's Answering Position

The dispute surrounding this claim term is the same as that for the previous claim term. For the reasons outlined above in Section II(E)(2), this phrase (and GE's proposed construction) is a statement of intended use that is not limiting and should not be given patentable weight. And, to the extent this phrase is limiting, Bio-Rad's proposed construction is the correct one. Moreover, as with claim 38 of the '124 Patent, the body of claims 1 and 17 of the '591 Patent and claims 1, 17, and 27 of the '420 Patent each recites "the system is capable of performing automated liquid chromatography"—language that would improperly be rendered superfluous by GE's proposed construction.

3. Plaintiffs' Reply Position

The dispute for this term is the same as "liquid chromatography system."

4. Defendant's Sur-Reply Position

See section II(E)(4) above. Further, GE's proposed construction essentially repeats the limitation "the system is capable of performing automated liquid chromatography" in the body of '591 patent claims 1 and 17 and '420 patent claims 1, 17, and 27, improperly rendering that limitation superfluous. *Merck*, 395 F.3d at 1372.

G. “wherein the system is capable of performing automated liquid chromatography” ('591 Patent: 1, 17; '420 Patent: 1, 17, 27)

GE's Construction	Bio-Rad's Construction
Plain and ordinary meaning	To the extent this is a limitation, “a fluid handling system that has components that can automatically deliver controlled fluid flow through a liquid chromatography column.”

1. Plaintiffs' Opening Position

First, this claim term is plainly a limitation since the “wherein” clause provides “meaning and purpose to the [claimed] steps.” *Griffin v. Bertina*, 285 F.3d 1029, 1033 (Fed. Cir. 2002). *See also Allergan Sales, LLC v. Sandoz, Inc.*, 935 F.3d 1370, 1373-1376 (Fed. Cir. 2019) (holding that two wherein clauses in a claim were both limitations).²⁶ As described in Section II(D), the specification makes clear that a liquid chromatography system having the claimed features is an important embodiment of the invention. The specification states that the invention relates to “fluid handling systems” and describes “liquid chromatography systems” as one specific type of such systems. *See, e.g.*, 1:18-23; 2:41-43, 2:50-52. The “wherein” clause thus describes a fundamental characteristic of the

²⁶ One of the reasons *Allergan* held that the wherein clauses were limitations was the fact that the Examiner had relied on them when allowing the claims. Similarly, in Bio-Rad’s IPR petition challenging the claims of the ’718 Patent, the PTAB denied institution on challenges directed to claims reciting liquid chromatography system limitations, which is what the wherein clause at issue here also recites. *See* Section II(D).

claimed invention: that the system is a liquid chromatography system.

Because this phrase is plainly a limitation, GE proposes that it be given its plain and ordinary meaning. *Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002) (“[C]laim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.”); *see also Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012) (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”). The meaning of “wherein the system is capable of performing automated liquid chromatography” is easily understood by one of ordinary skill in the art. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) (“Claim construction is...not an obligatory exercise in redundancy.”)

Bio-Rad’s construction, which imports concepts of “controlled fluid flow” and a “liquid chromatography column,” is unnecessary and is more likely to confuse than help the jury understand the claims. *See Ansell Healthcare Prod. LLC v. Reckitt Benckiser LLC*, C.A. No. 15-915-RGA, 2017 WL 1021844, at *4 (D. Del. Mar. 16, 2017) (“Plaintiff is open to including this fuller statement from the specification. But, I do not think the added language will aid the jury.”);

Funai Elec. Co., Ltd v. Daewoo Electronics Corp., 616 F.3d 1357, 1366 (Fed. Cir. 2010) (explaining that a criterion of claim construction is “whether the explanation aids the court and the jury in understanding the term as used in the claimed invention.”). Bio-Rad’s proposal would lead to undesirable necessity of explaining several *additional* terms beyond the claim language itself to the jury.

Accordingly, GE submits that the claim term needs no construction.

2. Defendant’s Answering Position

This phrase, like “liquid chromatography system,” is a statement of intended use, is not limiting, and should not be given patentable weight for the same reasons outlined above in Section II(E)(2). *See Hewlett-Packard*, 909 F.2d at 1468; *Schreiber*, 128 F.3d at 1477. Indeed, this phrase includes GE’s proposed construction for “liquid chromatography system.” Whether the “intended use” statement appears in the preamble or the body of the claim is immaterial. *See Anderson*, 662 F. App’x at 963.

To the extent this is a limitation, Bio-Rad’s construction is the correct one. The phrase must provide a structural limitation (“components”); otherwise, it improperly states an intended use. GE argues that “Bio-Rad’s construction, which imports concepts of ‘controlled fluid flow’ and a ‘liquid chromatography column,’ is unnecessary and is more likely to confuse than help the jury understand the term.” *Supra* p. 69. To the contrary, the additional language will aid the jury by

helping them understand that the claims require structural components and not merely an intended use of a product in the subjective mind of a manufacturer.

3. Plaintiffs' Reply Position

As discussed in GE's opening brief, the "wherein" clause is limiting. Bio-Rad did not rebut this argument. Thus, the dispute here is largely the same as for the previous term.

Additionally, Bio-Rad fails to meaningfully address GE's argument that Bio-Rad's construction imports concepts unnecessarily and will be confusing to a jury. Bio-Rad provides no support for its contention that additional language will help the jury, especially here where Bio-Rad's proposal would require explaining several additional terms beyond the claim language itself to the jury.

4. Defendant's Sur-Reply Position

This phrase states an intended use, and GE's proposed plain and ordinary meaning does not add anything about the structure of the system. Thus, it is not limiting and should not be given patentable weight. *Textron*, 498 F. App'x at 28.

To the extent this is a limitation, Bio-Rad's construction helps the jury understand that the phrase must be describing something about the structure of the system—that it includes "components that can deliver controlled fluid flow through a chromatography column"—"rather than merely listing its intended or preferred uses." *Id.* Further, concepts such as "controlled fluid flow" and a

“liquid chromatography column” would help the jury understand what it means to “perform . . . liquid chromatography.”

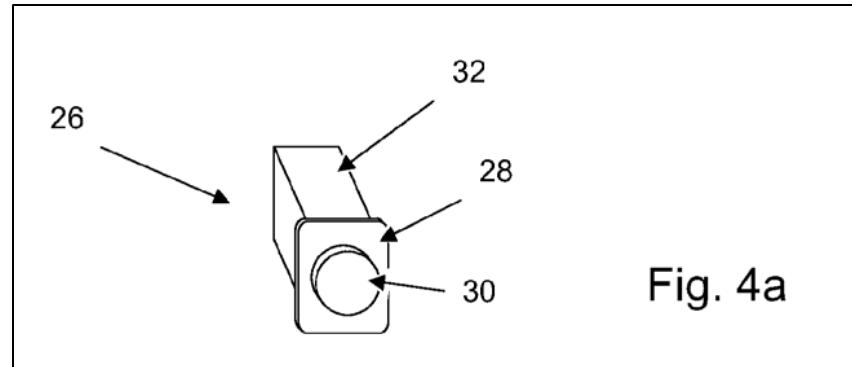
**H. “non-fluidics section”/“non-fluidics section”/“non fluidics section”
(’591 Patent: 1, 17, 29; ’420 Patent: 1, 5, 17, 22, 27; ’124 Patent:
16, 35, 38, 44)**

GE’s Construction	Bio-Rad’s Construction
“a section of the interchangeable fluid handling unit that includes electrical components and does not include fluidics components”	“all the non-fluidics/electrical components of an interchangeable fluid handling unit”

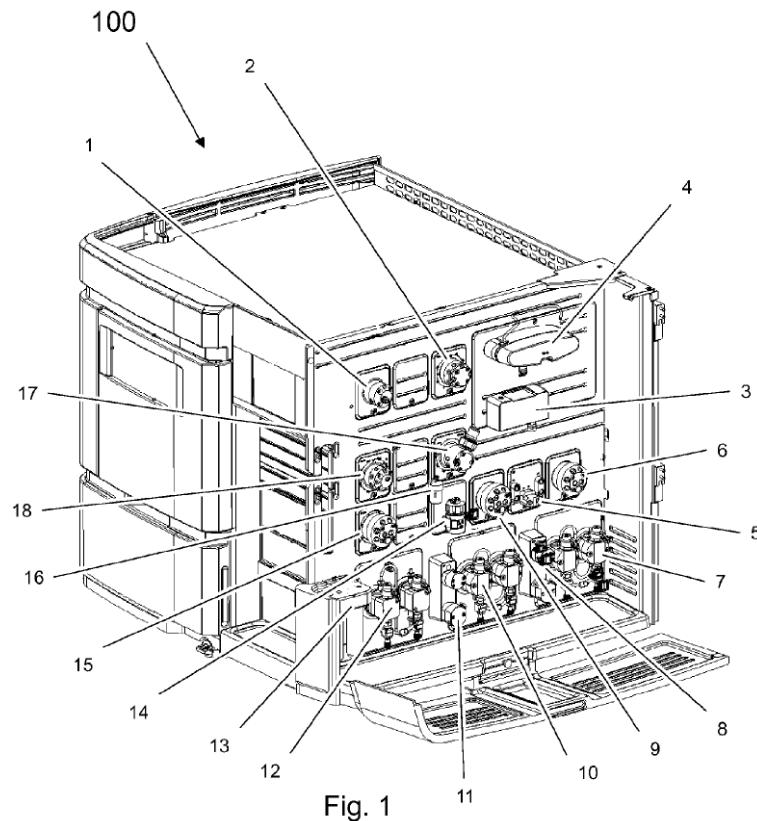
1. Plaintiffs’ Opening Position

GE’s construction of “a non-fluidics section” gives meaning to the actual claim language and reflects that the claim term is “*a* section” of the “interchangeable fluid handling unit,” “modular fluid handling unit,” or “interchangeable modular component.” GE’s construction that the section “includes electrical components but does *not* include fluidics components” thus stays true to the plain language. In contrast, Bio-Rad’s construction—which would require *all* non-fluidics/electrical components of the unit to be within the claimed “non-fluidics section”—is contrary to the intrinsic record.

Figures 4a-d show exemplar fluid handling units in the form of interchangeable modular components. As shown in Figure 4a, such units include an external fluidics section (30), panel member (28) and non-fluidics section (32).



The specification contemplates that other portions of the unit may have non-fluidics or electronic components. For example, Figure 1 plainly shows an interchangeable modular component (*i.e.*, a pH valve (17)) with a pH electrode (which has non-fluidic or electrical components) in portions of the units other than the non-fluidics section.



See also Fig. 1 at 17; 2:50-3:5; 4:45-53 (“Still another embodiment of fluid control valve may be a pH valve **17** that has an integrated flow cell where a pH electrode can be installed.”). Thus, the specification discloses an electrical component located in the non-fluidics section, meaning that were the Court to adopt Bio-Rad’s construction, the claims would not cover a disclosed embodiment.

In addition, this embodiment is recited in several dependent claims, which render Bio-Rad’s construction incompatible with the claims since such limitations include non-fluidics/electrical components in locations Bio-Rad would assert are fluidics sections. In particular, there are a number of dependent claims that recite a pH electrode (*i.e.*, an electrical component) that is external to the housing. For example, claim 12 of the ’591 Patent recites that “the system further comprises a pH electrode that is external to the housing.”²⁷ Claim 26 of the ’591 Patent, which depends from claim 12, further recites that “the pH electrode is connected to a pH valve formed as an interchangeable modular component.” Claim 1, from which these claims ultimately depend, require that the “fluidics section” be “external.” ’591 Patent, 9:21-23. Thus, dependent claims 12 and 26 of the ’591 Patent recite a non-fluidics/electrical component that is “external,” meaning that “all the non-

²⁷ See, also., ’420 Patent at claims 5, 22, 30 (“wherein the [liquid chromatography] system further comprises a pH electrode that is external to the housing.”)

fluidics/electrical components of an interchangeable fluid handling unit,” *i.e.*, Bio-Rad’s construction, are not located in the non-fluidics section.

Thus, if Bio-Rad’s construction were adopted, these dependent claims would be outside of the scope of the independent claims, as they would result in “all the non-fluidics components” not being internal to the housing, a result that is disfavored by the Federal Circuit, since terms in independent claims should not be construed to render dependent claims meaningless. *See Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1362 (Fed. Cir. 2008) (claim term “and” construed to ensure that dependent claims had meaning); *see also Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1370 (Fed. Cir. 2016) (“[C]onstruing the independent claim to exclude material covered by the dependent claim would be inconsistent.”).

Moreover, it is black letter patent law that “a” generally means “one or more” absent clear evidence that the intrinsic record compels limiting “a” to “one.” *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000); *SanDisk Corp. v. Kingston Tech. Co.*, 695 F.3d 1348, 1360 (Fed. Cir. 2012) (“[T]his court has repeatedly emphasized that an indefinite article ‘a’ or ‘an’ in patent parlance carries the meaning of ‘one or more’ in open-ended claims containing the transitional phrase ‘comprising.’”) (*quoting Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed. Cir. 2008)). Thus, the claims

contemplate that there may be additional non-fluidics sections.

2. Defendant's Answering Position

The dispute regarding these terms extends beyond these terms alone. The dispute really encompasses what it means for “a panel member arranged to separate the fluidics section from the non-fluidics section” and what it means to have “the fluidics section [] external to the housing and the non-fluidics section [] internal to the housing.” ‘591 Patent, Cls. 1, 17, 29; ‘420 Patent, Cl. 1; *see also id.*, Cls. 17, 27; ‘124 Patent, Cls. 16, 38. One can only determine, for example, if the fluidics section of an interchangeable fluid handling unit is external to the housing and the non-fluidics section is internal to the housing by knowing what components are part of each of those sections. And this separation is important because it serves safety and functional purposes: for example, to prevent liquid from shorting out electrical components. *See* 6:27-35 (“Said panel attachment member may be arranged so that all fluid connections of said modular component are arranged on a wet side of the panel attachment member separating them from electrical components that are arranged on a dry side thereof, hence providing a high degree of liquid resistance at the external part of the fluid handling panel, and so that the liquid resistance requirements for the internal sections may be somewhat lightened.”). Indeed, co-inventor Mats Lundkvist testified that “it was important to separate the fluidic section from the electrical components . . . to

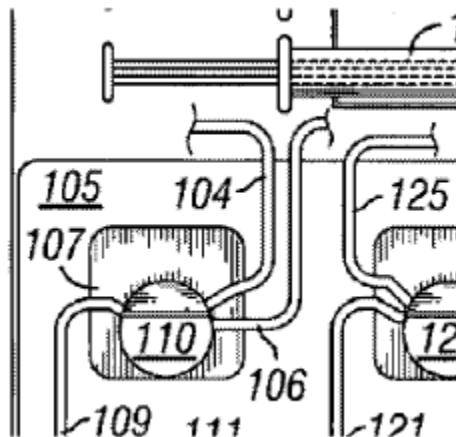
protect that leakage so it won't go in the electrical circuit board" Ex. J, 10/22/2014 Lundkvist Dep. at 140:14-25; *see also id.* at 41:7-18; 137:15-145:12; 153:3-154:13; 158:16-166:16; 167:5-178:25. GE's expert in the consolidated case also testified to that effect. *See* Ex. K, 10/17/2014 Scandella Dep. at 54:25-55:6 ("[O]ne reason [for separating the fluidics sections from the electrical components] is to protect the electrical components. The electrical components typically are sensitive and easily damaged by contact with—with fluids, particularly the kinds of fluids that are used in the fluidics section."); *see also id.* at 55:7-59:20.

Reinforcing this separation between fluidics and non-fluidics, the specification consistently identifies a single fluidics and a single non-fluidics section, rather than multiple sections, for each interchangeable fluid handling unit. *See, e.g.*, 6:8-13; 6:23-27, Fig. 4a. In other words, the specification refers to a "section" as containing *all* the components of that type. If the non-fluidics section only referred to some components and the fluid handling unit could include fluidics components on the same side, it would defeat the purpose of the panel member being "arranged to *separate* the fluidics section from the non-fluidics section"—which was important to the alleged invention as testified to by Mr. Lundkvist.

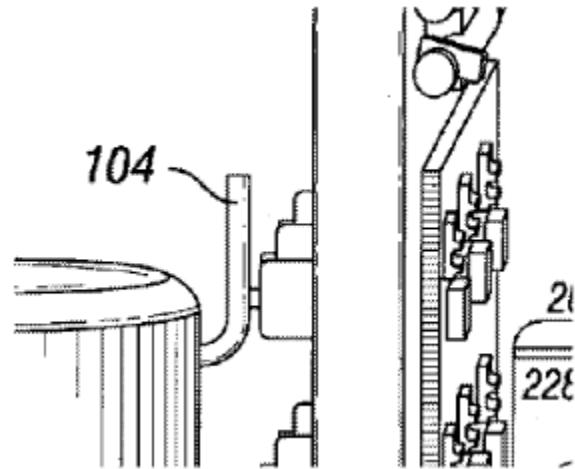
Bio-Rad's proposed construction is the only one that is consistent with GE's

statements in the file history of the parent ‘718 Patent, whose claims also recited a “non-fluidics section.” For example, in distinguishing the Mourtada prior art reference during prosecution of the ‘718 Patent, the inventors addressed what separation of fluidics and non-fluidics sections meant. D.I. 52, Ex. G at GEHC_001475-76. Figure 9 in Mourtada shows one fluid line (104) crossing the panel member/plate 105 and other fluid lines 109 and 114 that do not cross the panel member/plate 105. Ex. I at Fig. 9; *see* D.I. 52, Ex. G at GEHC_001477 (equating 105 with the panel member). The inventors stated that Mourtada did not show separation of fluidics sections and non-fluidics sections because there were some fluidics 104 that crossed the panel member to the non fluidics side:

As an example, fluid tubing 104 [0090] is shown [on] one side of the cassette 105 in Fig. 9:



and is shown on the opposite side of the cassette 105 in Fig. 10:



Id. at GEHC_001475-76. This argument is only consistent with the non-fluidics section meaning all the non-fluidics components.

Similarly, in distinguishing U.S. Patent No. 5,766,460 (“Bergstrom”), the inventors repeatedly emphasized the lack of separation of all fluidic and all non-fluidic/electrical components. *See id.* at GEHC_001450-51. For example, the applicants noted that, in Bergstrom, “[t]he detector 40 also includes a processing unit 55, which is very likely to be *electronic in nature* and conductors 41 which both appear to be *next to liquid paths*.¹⁰” *Id.* at GEHC_001450; *see also id.* (“In essence, Bergstrom proposes a base plate 1 to which modules[] . . . can be mounted and supplied with liquid and power/signals in series. Liquid and electrical parts sit side by side in the modules and in the base plate.”). The inventors also pointed out that “[t]he modules of Bergstrom do not separate their fluidic and electrical parts (where they have electrical parts),” for example because the detector module in Bergstrom is shown with “fluid and electrical parts

[that] are adjacent, not on either side of a panel.” *Id.* at GEHC_001451; *see also id.* (“There is no suggestion in Bergstrom that fluidic and non fluidic parts are separated as in presently claimed invention. In Bergstrom, the opposite is taught—that the fluid and non fluidic parts are together.”).

Finally, in distinguishing U.S. Patent Application Pub. No. 2008/0233653 (“Hess”), the applicants argued that there was no confinement of the non-fluidics/electronics components to the inside of the housing because one electrical component, “bus connections[,] must be *external* to said boxes,” such that “in Hess, respective non fluidics sections are not internal to any housing as claimed.” D.I. 52, Ex. G at GEHC_001416; *see also id.* at GEHC_001423-24 (“Applicant submits also that there is no disclosure in Hess of the separation concept of the fluidic sections and the non fluidic sections as claimed [T]he boxes of Hess must be electrically interconnected, and it follows that these connections are external to said boxes and not internal to any ‘housing.’”).

GE cites Figure 4a (*supra* pp. 72-73), but that figure supports Bio-Rad’s construction. As shown in Figure 4a (reproduced below), the label for the external fluidics section (30) points to all the fluidics components and the one for non-fluidics section (32) points to all the non-fluidics components, with the panel member (28) separating the two sections. There are no other components not covered by 30, 32, and 28.

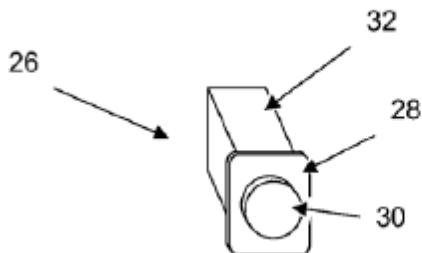


Fig. 4a

Fig. 4a.

Despite these teachings, GE argues that the specification contemplates that “other portions of the unit may have non-fluidics or electronic components,” such as a pH valve. *Supra* p. 73. GE points to Figure 1 and asserts that it “plainly shows an interchangeable modular component (*i.e.*, a pH valve (17)) with a pH electrode.” *Id.* But Figure 1 (reproduced below) only shows a pH valve 17, *not* a pH electrode.

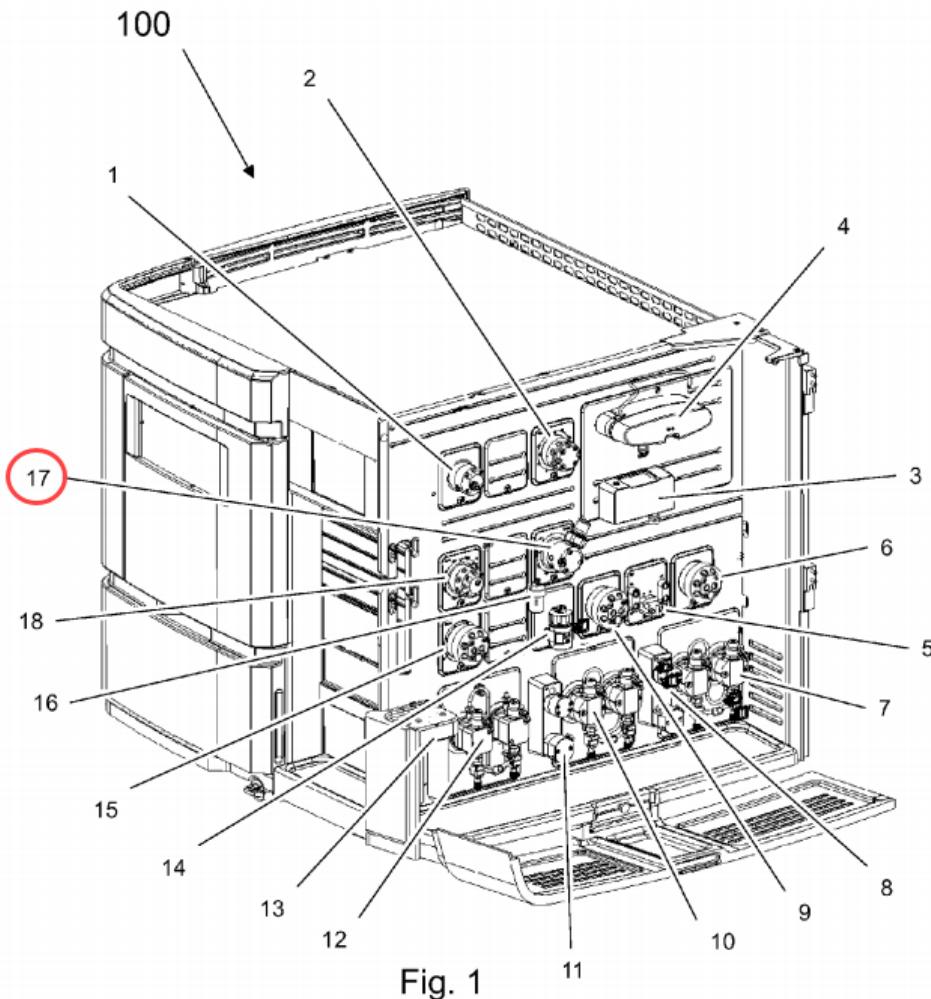


Fig. 1 (annotated). The specification ***does*** disclose the example of “a pH valve 17 that has an integrated flow cell where a pH electrode can be installed,” but nowhere in the specification is the “pH electrode” identified as a non fluidics component. 4:45-47. Indeed, the specification explicitly states that the pH electrode “***can be installed***” at the pH valve—*i.e.*, that it is a component ***separate*** from the interchangeable fluid handling unit that can be installed on a specific type of interchangeable fluid handling unit.

The dependent claims that GE relies on (*supra* pp. 74-75) are consistent

with this interpretation. These claims recite that the “*system* further comprises a pH electrode,” not that the fluid handling unit comprises a pH electrode. *E.g.*, ‘591 Patent, Cl. 12. And again, the claims recite that the “pH electrode is **connected to** a pH valve formed as an interchangeable modular component” (*i.e.*, by installing), which indicates that the pH electrode is separate from the pH valve, *i.e.* separate from any fluid handling unit or any portion thereof. *E.g.*, ‘591 Patent, Cl. 26. Nowhere in the specification or claims is the pH electrode described as being an integral part of the pH valve.

GE’s argument that Bio-Rad’s construction would make these dependent claims be “outside the scope of the independent claims” because not all the non-fluidics components would be internal to the housing rests on the incorrect assumption that the pH electrode is a part of the pH valve. Bio-Rad’s construction only requires all the non-fluidics/electrical components ***of an interchangeable fluid handling unit*** be internal to the housing. The claimed system may include further non-fluidics/electrical components that are separate from the interchangeable fluid handling units that are external to the housing, as is common with apparatus “comprising” claims. Indeed, the specification discloses an embodiment where the system can be connected to modular components outside the housing (8:15-18) and an embodiment where the system can communicate with internal and external components and control computers (8:50-52). Because

such external components or computers that can be connected to the system are not part of the interchangeable fluid handling units, just like the pH electrode, Bio-Rad's construction does not require them to be internal to the housing.

Finally, contrary to GE's conclusory and unsupported argument that the pH valve "has non-fluidic or electrical components" (*supra* p. 73), neither the claims nor the specification contemplate that there may be additional non-fluidics sections that are part of the interchangeable fluid handling unit but are located outside the housing. The specification describes only one "non-fluidics section," which is located inside the housing (*i.e.*, behind a liquid handling panel). *See, e.g.*, Fig. 4a (showing non-fluidics section 32 behind liquid handling panel 28).

3. Plaintiffs' Reply Position

GE's construction identifies the most important consideration regarding this phrase within the context of the claimed invention: that the claimed interchangeable modular components include at least one section that does not have any fluidics components within it. This is clear from the phrase itself ("**non-fluidics section**"), as well as the specification and prosecution history. Bio-Rad seeks to further limit the phrases to prevent non-fluidics components from existing outside the non-fluidics section by defining the non-fluidics section as "**all** the non-fluidics/electrical **components** of an interchangeable fluid handling unit." There is no textual basis in the claims for such a limitation, and there is no other

intrinsic evidence for such a construction.

a. The claim language supports GE

Bio-Rad makes much of the language surrounding the disputed terms, but ignores the terms themselves. The recited “non-fluidics section” forms a portion of the recited interchangeable modular components (or similar terms). The prefix “non-” controls the construction, and plainly states that the non-fluidics section of the interchangeable modular components does not handle fluids. Thus, GE’s construction, stating that it “does not include fluidics components” is correct. In contrast, the plain English says nothing at all regarding restricting it to “all” the non-fluidics/electrical components, as Bio-Rad urges.

In contrast, the “fluidics section” does not contain the limiting “non-” prefix, meaning that all that term requires is a section with “fluidics,” but contains no language precluding other components, *e.g.*, non-fluidic components. Thus, Bio-Rad’s mention of additional claim language provides it with no support, as the full clauses Bio-Rad identifies (*supra* pp. 76-77) refer to nothing more than where the fluidics and non-fluidics sections are located.

b. The prosecution history supports GE

While Bio-Rad does not say so, it is plainly arguing that GE disavowed claim scope during prosecution. As discussed, for there to be disavowal, the terms at issue must have had an ordinary meaning, which Bio-Rad does not attempt to

establish. Regardless, disavowal requires the alleged disavowal be both clear and unmistakable. *Thorner v. Sony Comp. Entm't Am. LLC*, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012). Bio-Rad contends that the discussion of the Mourtada prior art during prosecution of the '718 patent is “consistent” with its arguments that all fluidics must be in a single fluidics section that is separated from all electronics in a single non fluidics section. This comes nowhere close to showing a clear and unmistakable disavowal. Indeed, the quotation cited by Bio-Rad supports only GE’s position that the non-fluidics section ***does not include fluidics components.*** See D.I. 52, Ex. G at GEHC_001475-6 (“As an example, fluid tubing 104 [0090] is shown [on] one side of the cassette 105 in Fig. 9 [] and is shown on the opposite side of the cassette 105 in Fig. 10 []. Thus, even if the valves etc. mounted on cassettes 105/203 were considered to be modular, ***their respective fluidics sections are on both sides of those cassettes,*** and so are not separated from non fluidics parts by a panel as claimed.”) (emphasis added). This statement says nothing about “all” the non-fluidics/electronic components being on one side or the other of the cassettes.

Nowhere in the prosecution history did the inventors state that there must only be one fluidics section and one non-fluidics section, or that the sections must be defined by “all fluidics components” and “all non-fluidics components,” respectively. Instead, the inventors consistently stated only that the non-fluidics

section cannot have fluidics in it. *Id.* (distinguishing Mourtada by noting that it had fluid tubing internal to the cassette); *see also id.* at GEHC_001450-51 (distinguishing Bergstrom by stating that its modules had liquid paths next to non-fluidics components and thus did not have a **non**-fluidics section).

Indeed, all the relevant prosecution history statements focus on the lack of separation between the **non**-fluidics **section** and fluidics components in the prior art. This is a key part of the invention—that the section of each interchangeable modular component internal to the housing (the “non-fluidics section”) is separated from the fluidic components, thereby reducing the possibility of damage via fluid contact. *See, e.g.*, 6:27-35 (“Said panel attachment member may be arranged so that all fluid connections of said modular component are arranged on a wet side of the panel attachment member separating them from electrical components that are arranged on a dry side thereof, hence providing a high degree of liquid resistance at the external part of the fluid handling panel, and so that the liquid resistance requirements for the internal sections may be somewhat lightened.”). Indeed, note that the word “all” appears when discussing “fluid connections,” but is notably absent when discussing “electrical components.”

Thus, by arguing that, for example, the non-fluidics section is defined by *all* non-fluidics/electrical components, Bio-Rad overly limits the term. Nowhere in the specification or file history does the inventor clearly state that every single

non-fluidics component must be inside the housing (which Bio-Rad's construction would require when placed in the claim as a whole). Instead, the invention provides for a section that can house *some* non-fluidics components that could be harmed by fluids. Thus, Bio-Rad comes nowhere close to showing that there was any disavowal, let alone a “clear and unmistakable” disavowal. *Thorner*, 669 F.3d at 1366-67.²⁸

- c. The claims do not require a single fluidics and a single non-fluidics section for each interchangeable fluid handling unit.

As explained in GE’s Opening Brief, the claims recite that each interchangeable fluid handing unit have “a fluidics” section and “a non-fluidics section.” Recitation of the indefinite article “a” or “an” means that the claims cover “one or more” where, as here, the claim contains the transitional phrase “comprising.” *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000); *SanDisk Corp. v. Kingston Tech. Co.*, 695 F.3d 1348, 1360 (Fed. Cir.

²⁸ While Bio-Rad points to out-of-context portions of transcripts to support its point, Bio-Rad neglects to mention that its expert in the SDNY case testified that “there may be multiple ways to read” this portion of the file history and “it doesn’t specify ... which way it reads.” Ex. L at 114:3-13. This is not surprising, as “the prosecution history represents an ongoing negotiation between the PTO and the applicant ... it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips*, 415 F.3d at 1317. Moreover, Bio-Rad’s reliance on an inventor’s testimony (*supra* pp. 76-77) is misplaced, as it is generally irrelevant to claim construction. *Howmedica Osteonics Corp. v. Wright Med. Tech., Inc.*, 540 F.3d 1337, 1346-1347 (Fed. Cir. 2008).

2012). The claims never recite that *all* non-fluidics components must be contained in a single section for each fluid handling unit.

Bio-Rad appears to argue that the general canon of claim construction – *i.e.*, that “a” means one or more – must be dispensed with because, according to Bio-Rad, the specification only discloses a single fluidics and a single non-fluidics section for each interchangeable fluid handling unit. *Supra* p. 77. But nowhere does the specification indicate that a single fluidics or non-fluidics section is required. In fact, the patent discloses and claims several embodiments which the person of ordinary skill in the art would know could have multiple sections. *See* Figs. 1, 2, 4d, 10; 2:50-3:5; 4:45-53; 5:38-50; 6:20-22. Even if Bio-Rad were correct that the patent’s examples have a single fluidics and non-fluidics section, it would be legally improper to limit the claims on this basis. *Accent Packaging*, 707 F.3d at 1326 (*quoting Phillips*, 415 F.3d at 1323).

d. Dependent claims support GE

Claim 12 of the ’591 Patent recites that “the system further comprises a pH electrode that is external to the housing.”²⁹ If Bio-Rad’s construction were adopted, these dependent claims would be outside of the scope of the independent claims, since “all the non-fluidics components” would not being internal to the

²⁹ See also ’420 Patent, cl. 5, 22, 30 (“wherein the [liquid chromatography] system further comprises a pH electrode that is external to the housing.”)

housing, a result that is disfavored. *See Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1362 (Fed. Cir. 2008) (claim term “and” construed to ensure that dependent claims had meaning); *see also Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1370 (Fed. Cir. 2016).

Bio-Rad argues that the pH electrode is not part of a modular fluid handling unit. *Supra* p. 83. Bio-Rad does not point to any portions of the specification or file history to support its assertions; it merely points to its own interpretation of claim language that is not being construed (e.g., “connected to”). *Id.* Bio-Rad’s argument has no merit. Indeed, the specification plainly states that the pH electrode is “installed” in the integrated flow cell of pH valve 17 (an interchangeable modular component). 4:45-53. Something that is “installed” into a flow cell that “integrated” with the pH valve is plainly part of the valve itself.

4. Defendant’s Sur-Reply Position

The claim language, specification, and the prosecution history all support Bio-Rad’s construction.

The claim language requires that the fluidics section be separated from the non-fluidics section by a “panel member,” which serves important safety and functional purposes as described by the specification. *See* 6:27-35. The “non-fluidics section” does not include fluidic components, as acknowledged by GE (*supra* p. 87). The “fluidics section” similarly does not include non-

fluidic/electrical components. It follows that “non-fluidics section” means “all the non-fluidics/electrical components of an interchangeable fluidic handling section,” and “a fluid handling section” means “all the fluidics components of an interchangeable fluidic handling section.” GE’s attempt to ignore the claim language and specification and interpret these terms in isolation is improper. *Atlas IP, LLC v. Medtronic, Inc.*, 809 F.3d 599, 608 (Fed. Cir. 2015) (reversing district court because it “did not rely on anything for its construction except the claim words understood in isolation” and did not consider “other claim language and the specification”).

GE argues that Bio-Rad “is plainly arguing” disavowal and has failed to show a “clear and unmistakable” disavowal. *Supra* pp. 85, 88. However, statements made during prosecution can be used to clarify or confirm that a definition is correct without a “clear and unmistakable” disclaimer. *See, e.g., Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 678-81 (Fed. Cir. 2015).

Moreover, even if one proceeded under the clear and unmistakable disclaimer standard, the statements about Mourtada *are* clear and unmistakable disclaimers of claim scope because the statement that Mourtada did not show separation of fluidic and non-fluidic sections could only be interpreted to mean that all fluidic and non-fluidic components of the panel must be separated.

Mourtada showed over a dozen fluidic components in the cassette of Figure 9 that were separated from the non-fluidic components and only three that were not. Ex. I at Fig. 9. GE's proposed construction would be completely inconsistent with GE's representation to the examiner that the over a dozen fluidic components did not establish separation of the fluidic and non-fluidic components.

GE tries to characterize the inventors' statements during prosecution as "only that the non-fluidics section cannot have fluidics in it." *Supra* pp. 86-87. But the inventors also stated that the fluidics section has to be separated from non-fluidics parts. D.I. 52, Ex. G at GEHC_001475-76 ("As an example, fluid tubing 104 [0090] is shown [on] one side of the cassette 105 in Fig. 9 [] and is shown on the opposite side of the cassette 105 in Fig. 10[.] Thus, even if the valves etc. mounted on cassettes 105/203 were considered to be modular, their respective fluidics sections are on both sides of those cassettes, and so are ***not separated from non fluidics parts*** by a panel as claimed." (emphasis added)). This statement requires the fluidics to be separated from non-fluidics parts. Co-inventor Mats Lundkvist also testified that "it was important to ***separate the fluidic section from the electrical components . . .*** to protect that leakage so it won't go in the electrical circuit board"—testimony that reinforces GE's prosecution history statements. Ex. J at 140:14-25 (emphasis added). If there are electronics in the fluidics section, this separation is eroded, defeating the purpose

of the panel member and undermining the inventors' statements.

GE argues that the specification does not indicate that a single fluidics or non-fluidics section is required. *Supra* p. 89. To the contrary, the specification's consistent identification of a single fluidics section indicates that "fluidics section" refers to all the fluidics components, and the same for "non-fluidics section." *See, e.g.*, 6:8-13, 6:23-27, Fig. 4a. A person of ordinary skill in the art reading the claim in light of the specification would understand this usage of the term "section." GE further argues that it would be improper to limit the claim on this basis, but the specification's use of these terms (along with the reasons outlined above) show that Bio-Rad's construction is the only correct one.

GE finally argues that Bio-Rad's construction would take dependent claims that recite the pH electrode outside the scope of the independent claims. *Supra* pp. 89-90. GE argues without support that if something is "installed" into a pH valve "it is plainly a part of the valve itself." *Id.* p. 90. But the specification makes clear that the pH electrode is an easily detachable unit that can be installed when used, and nowhere does it describe the electrode as being part of the module.

I. “a fluid handling section”/“a fluidics section” (’589 Patent: 1, 10, 13, 21; ’591 Patent: 1, 12, 13, 17, 29; ’420 Patent: 1, 5, 17, 22, 27; ’124 Patent: 16, 35, 38, 44)

GE’s Construction	Bio-Rad’s Construction
“a section of the interchangeable fluid handling unit that includes fluidics components”	“all the fluidics components of an interchangeable fluid handling unit”

1. Plaintiffs’ Opening Position

GE proposes a construction of “a fluid handling section”/“a fluidics section” that gives meaning to the actual claim language. Specifically, as with the term “a non-fluidics section,” GE’s construction recognizes that the claim language in dispute is “*a* section” of the “interchangeable fluid handling unit,” “modular fluid handling unit,” or “interchangeable modular component” with fluidic components. Nothing in the intrinsic record mandates that the claimed section include “*all*” of the fluidic components of the interchangeable fluid handling unit, as Bio-Rad proposes.

As explained above, Fig. 4a depicts a fluid handling unit in the form of interchangeable modular component. The fluid handling unit includes an “external fluidics section” (30).

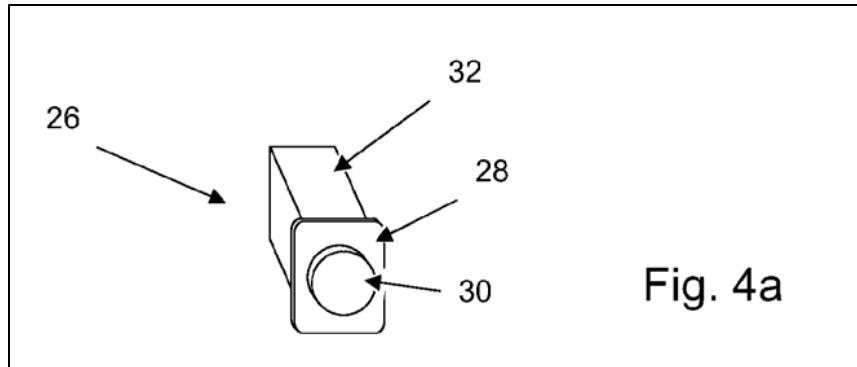


Fig. 4a

The specification of the Asserted Patents is clear that the units may include other sections or components. Indeed, the specification describes that “[t]he standard component module 26 *comprises* a panel member 28, *an external fluidics section 30* and an internal non-fluidics section 32.” 6:8-10. The specification thus contemplates that there may be other portions of the unit with fluidic components. Moreover, in reciting “a fluid handling section” or “a fluidics section,” the claims contemplate that there may be multiple sections within fluidic components and nothing in the specification compels a different result. *KCJ*, 223 F.3d at 1351; *SanDisk*, 695 F.3d at 1348.

In fact, while the specification describes “one embodiment” where “fluids are strictly restricted to the fluidics section 30 of the interchangeable modular component 26” (7:35-37), this description is exactly that: one embodiment. Nothing within the intrinsic record indicates that “a fluid handling section”/“a fluidics section” must be limited to this embodiment, as Bio-Rad apparently urges. There is no claim language present in the relevant claims suggesting that this

particular embodiment has been claimed. Given that the Federal Circuit has repeatedly cautioned against reading limitations from the specification into the claims, the Court should not do so here, as no claim language is present mandating such a construction. *See e.g., RF Delaware, Inc. v. Pacific Keystone Technologies, Inc.*, 326 F.3d 1255, 1264 (Fed. Cir. 2003) (“A basic claim construction canon is that one may not read a limitation into a claim from the written description.”).

2. Defendant’s Answering Position

The construction for fluidics section is substantially similar to the one for the non-fluidics section. It is all the fluidics components of an interchangeable fluid handling unit. There is no difference in the way the specification identifies the fluidics and non-fluidics sections other than the components that make up the sections and their location relative to the panel member. The specification describes a standard interchangeable modular component such as a fluid control valve as having a single fluidics section 30 and a single non-fluidics section 32. *See* 6:8-13; 6:23-27; Fig. 4a.

GE argues that because the specification uses the word **comprises**—“[t]he standard component module 26 **comprises** a panel member 28, *an external fluidics section 30*” (6:8-10)—it contemplates that there may be other portions. *Supra* p. 95. GE then argues that the claims are not limited to the “one

embodiment” where “fluids are strictly restricted to the fluidics section 30 of the interchangeable modular component 26” (7:35-37) because “[n]othing within the intrinsic record indicates that ‘a fluid handling section’/‘a fluidics section’ must be limited to this embodiment.” *Supra* p. 95. However, this is inconsistent with the claim language of “a panel member arranged to **separate** the fluidics section from the non-fluidics section” and the purpose of separation discussed above in Section II(H)(2). And it would improperly render the claim language requiring the panel member arranged to separate the fluidics section from the non-fluidics section superfluous.³⁰ *See Merck*, 395 F.3d at 1372; *Power Mosfet*, 378 F.3d at 1410.

Further, as discussed above, the statements GE made during prosecution of the ‘718 Patent—that the cited prior art references did not show separation of fluidic and non-fluidic sections—can only be interpreted to mean that all fluidic and non-fluidic components of the panel must be separated. The Federal Circuit has imposed limitations based on statements just like those GE made. *See N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1345-46 (Fed. Cir. 2005) (claim language that called for convex wall was properly interpreted to

³⁰ In rendering this language superfluous, it would erase any distinction between, for example, the claims of the ‘591 Patent (in which the separation language appears) and those of the ‘590 Patent (in which that language does not appear). Such a result runs counter to the principle of claim differentiation. *See, e.g., Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380-81 (Fed. Cir. 2006).

disclaim any concave portion because patentee distinguished prior art reference that had slightly concave walls); *see also ZapMedia Servs., Inc. v. Apple Inc.*, 482 F. App'x 533, 534, 536-39 (Fed. Cir. 2012) (imposing limitation requiring access **only** by authorized devices to claim term that stated media could “be accessed by any one of the authorized plurality of media player devices” because patentee had distinguished prior art that allowed access by unauthorized devices). The prosecution history (discussed above in Section II(H)(2)) demonstrates that “a fluid handling section”/“a fluidics section” must be limited to the embodiment where the fluids are strictly restricted to the fluidics section of the interchangeable fluid handling unit. *See* 7:35-37.

3. Plaintiffs’ Reply Position

The dispute surrounding this term is the same as for “non-fluidics section.”

4. Defendant’s Sur-Reply Position

See section II(H)(4) above.

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CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Counsel hereby certifies that this brief complies with the Court's typeface, font size, and word count limitations. The word count of this brief, excluding tables and signature blocks, is 21,042 words in 14-point Times New Roman font.

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